DISSERTATION ON

"EFFECTIVENSS OF EFFLEURAGE BACK RUB ON PHYSIOLOGIC MEASURES AMONG CHILDREN ADMITTED IN SELECTED POST OPERATIVE WARDS AT ICH & HC, CHENNAI-08"

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Certificate

This is to certify that this dissertation titled **"EFFECTIVENSS OF EFFLEURAGE BACK RUB ON PHYSIOLOGIC MEASURES AMONG CHILDREN ADMITTED IN SELECTED POST OPERATIVE WARDS AT ICH & HC, EGMORE, CHENNAI"** is a bonafide work done by **MS.KALPANA.K,** College of Nursing, Madras Medical College, Chennai – 600003 submitted to **The TAMILNADU DR.M.G.R. MEDICAL UNVERSITY**, CHENNAI in Partial fulfillment of the requirements for the award of Degree of **Master of Science in Nursing, Branch II, CHILD HEALTH NURSING,** under our guidance and supervision during the academic period from 2011 – 2012.

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What I become is my gift to God"

– St. Augustine.

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SI.NO	ABBREVIATIONS	EXPANSION
1.	HR	Heart rate
2.	RR	Respiratory rate
3.	SBP	Systolic blood pressure
4.	DBP	Diastolic blood pressure
5.	DF	Degrees of freedom
6	SD	Standard deviation
7	CI	Confidence Interval
8	Fig	Figure
9	H1 & H2	Research Hypothesis
10	M. Sc (N)	Master of science in Nursing
11	$\chi 2$	Chi-square test
12	NO	Number

ABSTRACT

BACKGROUND: Postoperative pain is one of the most common therapeutic problems in hospitals. It can increase morbidity leading to reduced breathing and cough suppression, facilitating retained pulmonary secretions and pneumonia, and delaying normal gastric and bowel function, and thus contributing to a longer recovery period. . The purpose of the study was to assess the "Effectiveness of Effleurage back rub on physiologic measures among children aged 8-12 years admitted in selected post operative wards". **METHODOLOGY:** A quasi experimental one group pretest post test design was used to assess the effect of physiologic measures among post operative children (N=50) selected using convenient sampling methods. Pre assessment of physiologic measures followed by effleurage back rub using talcum powder given for 10 minutes. Post assessment of Physiologic measures after ten minutes of Effleurage back rub was observed**. RESULTS:** The mean pain score on the first day before massage was 7 and the same was reduced after massage on the second day to 2. The mean Heart rate before effleurage back rub was 119.56 beats/min and the same was reduced to 100.92beats/min after massage. The mean Respiratory rate before massage was 30.12breaths/min and the same was reduced to 21.02breaths/min after massage. The mean Systolic blood pressure before Effleurage back rub was 126.34mm Hg and the same was reduced to 102.04 mm Hg. The mean Diastolic blood pressure before Effleurage back rub was 81.72 mm Hg and the same was reduced to 63.12 mm Hg. **CONCLUSION**: Reduction of Heart rate from baseline is 15.59%, Respiratory Rate is 29.61%, Systolic blood pressure < is 19.2%, Diastolic blood pressure is 18.6% and pain score is 73.40 %. Significant reduction in physiologic measures was noted after effleurage back rub ($p < 0.001$). Thus effleurage back rub is a useful pain relief measure.

CHAPTER- I

INTRODUCTION

"Freedom from pain should be a basic human right

Limited only by a knowledge to achieve it"

- Libenskindi Melzack, 1989

Children are an embodiment of our dreams and hopes for the future. They are wet clay in the potter's hands, handled with care they become something beautiful else they break and become discarded. They are the most vulnerable group in the society. ***Sherene G.Edwin (2007)***

Perception of pain in pediatrics is complex and entails physiological, psychological, behavioral, and developmental factors. However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors. Health care professionals in this setting have a responsibility to reduce pain and anxiety as much as possible while maintaining patient safety.

Postoperative pain is one of the most common therapeutic problems in hospitals. It can increase morbidity leading to reduced breathing and cough suppression, facilitating retained pulmonary secretions and pneumonia, and delaying normal gastric and bowel function, and thus contributing to a longer recovery period. Strategies aimed at reducing postoperative pain increase patient's comfort and can shorten hospital stay. ***Mc Quay (1997)***

Surgical trauma and pain cause an endocrine response that increases the secretion of cortisol, catecholamines and other stress hormones. Tachycardia, hypertension, regional decreases in blood flow, alterations in immune response, hyperglycemia, lipolysis, and a negative nitrogen balance can occur as a result of these and other metabolic changes. Ineffective pain management increases the incidence of postoperative behavioral disorders in children and the risk of developing persistent or neuropathic pain. Effective post-surgical pain management reduces the stress response to surgery,

promotes respiratory function, improves wound healing and permits faster return to normal functioning.

Profound physiologic changes often accompany the experience of pain. Physiologic parameters such as heart rate, respiratory rate, blood pressure, palmar sweating, cortisone levels, transcuatneous oxygen, vagal tone and endorphin concentrations reflect a generalized and complex response to stress. They are not localized responses to pain, but they provide useful information about the general distress levels of children who are experiencing pain. Physiologic parameters provide indirect estimates of pain and presence and strength of pain can only be inferred from the changes in these parameters. ***Sweet and Mc Grath (1998)***

Pain causes an increase in sympathetic response of the body with subsequent risk in HR, cardiac work load and O_2 consumption. Prolonged pain can reduce physical activity and lead to venous stasis and increase risk of deep vein thrombosis and subsequent pulmonary embolism. ***Wang HL, Keck JF (2004)***.

Heart rate initially decreases and then increases in response to short, sharp pain. Vagal tone and heart rate variability such as during breathing have been used as indices of pain and distress. Heart rate is an easy and generally valid measure of short, sharp pain.

Postoperative pain relief must reflect the needs of each patient and this can be achieved by considering many factors. The level of postoperative care administered is dependent upon the procedure performed. Achieving adequate pain relief is important in children, although children often do not or cannot complain specifically of pain. **Dr Ed *Charlton (1997)***

Research on pain has flourished in recent years and pain control is a multidisciplinary activity, Nurses play a central role in assessing and managing pain. The postoperative care of surgical neonates and children begins upon completion of wound closure. Pain may adversely affect recovery of infants since painful stimuli may result in decreased arterial saturation and increased pulmonary vascular resistance. Effective pain control allows earlier ambulation and faster recovery in older children.

Non-pharmacological therapies for pain may help improve child's feelings by making them more comfortable and relaxed. These therapies may be used before and after child undergoes a painful experience, such as a medical procedure or **s**urgery. They bring comfort to child during a long standing condition or illness.

Massaging - the art of rubbing as defined by Hippocrates roots back to thousands of years. It has a long history in culture around the world. Today people use many different types of massage therapy for variety of health problems and health related purposes. Many researchers have scientifically proved that even a single session of back massage can reduce state anxiety(a reaction to particular situation), blood pressure, heart rate and multiple sessions can reduce trait anxiety(general anxiety proneness),depression and pain**.** ***Wendy A (2006)***

Back massage is effective on all the physiological responses included blood pressure, Heart rate, respiratory rate and psychological responses anxiety level. Oils are made up of plants essence and are used to reduce anxiety, stress or insomnia, relax, energize and simply add a pleasurable element to the massage ***Stewart (2000)***

Effleurage can be firm or light stroke without dragging the skin and is performed using either the padded parts of the finger tips or the palmer surface of the hands, works as a Mechanical pump on the body to encourage venous and lymphatic return ***Halls (2002)***.

PHYSIOLOGICAL BASIS

Massage movements usually cause two broad types of responses in the body: mechanical response and reflexive response. Mechanical responses are direct responses brought on by force or pressure, usually resulting from pressure and range of motion. Tissue is pulled, lifted, rubbed, compressed and manipulated to produce mechanical responses, such as increased blood circulation, reduced swelling and breaking up of scar tissue. Reflex responses on the other hand, occur when nerves respond to a stimulus, such as decreased arousal of the sympathetic nervous system or triggering of nerve receptors. Reflex responses include increasing the diameter of blood vessels, reducing blood pressure and general relaxation.

1.1 NEED FOR THE STUDY

"The art of life is the art of avoiding pain"

- *Willim Hazlitt*

Hospitalization and disease process can place a heavy demand on an individual's physiological and psychological status. There is a need for a non pharmacological intervention to address all these discomforts as an adjunct to the normal routine care and pharmacological interventions and therefore it is necessary to adopt some alternative holistic modalities such as yoga, meditation, guided imagery, music therapy, aromatherapy and massage therapy. ***Rice M (2008)***

Mostly pain resolves promptly once the painful stimulus is removed and the body has healed, but sometimes pain persists despite removal of the stimulus and apparent healing of the body and sometimes pain arises in the absence of any detectable stimulus, damage or pathology. Social support, massages therapy, hypnotic suggestion, distraction and appraisal can all significantly modulate pain's intensity or unpleasantness.

The gift of touch is the most powerful healing one can offer another and it is the most powerful healing one can give themselves. Touch is a language spoken through the hands and understood by the heart. Together, intention and touch set the tone and provide the basis for healing. Touch and massage are inextricably linked. ***Kathleen Keating(2007)***

Michelle A. Fortier (2011) conducted a cross sectional study to identify the incidence of chronic pain in children after surgery. A total of 113 children and their parents were enrolled. Data regarding persistence and characteristics of pain after surgery were obtained. Approximately 13% of the children, most of whom underwent orthopedic procedures, reported the existence of symptoms of chronic postoperative pain. Most of the children indicated that the pain started immediately after surgery, was localized to the surgery site, and was intermittent. Children reported a median duration of pain of 4.1 months, and approximately half of the children experienced pain most days of the week. Up to 30% of the children reported interference of pain in functioning in areas such as extracurricular activities and sleep. Author concludes that the large numbers of children are at risk for experiencing chronic postoperative pain, preventative efforts are necessary.

Nursing is a profession that can be practiced in many unique ways. Nursing care can be provided through conventional means in traditional settings or practiced in domains labeled as alternative or complementary. Massage therapy is an alternative therapy of a holistic Nursing practice ***Mitzel-Wilkinson (2000)***

Non-pharmacological methods have been shown to be effective in relieving pain; however, many barriers, including lack of knowledge, limit nurses' use of these methods. Pain education is a promising strategy for changing Nursing practice, but only a few authors have examined the effectiveness of educational interventions for nurses to help relieve children's postoperative pain. Studies indicate that Non – pharmacological interventions are found to be effective in reducing pain. One of the most commonly used measures is the Massage therapy ***Vickers (1996).***

Non pharmacological pain management is one approach to a comprehensive method of pain relief. They do not replace pharmacological methods of pain management and can be used in conjunction with pharmacological pain practices to enhance the patient's relief of pain. Non pharmacological pain management therapies can be classified into three categories. There are cognitive or behavioral strategies, which include distraction, relaxation, imagery, and breathing techniques. The second category is physical or cutaneous strategies, which include heat/cold, vibration, massage, position changes, and trans-electrical nerve stimulation (TENS). Finally, there are environmental or emotional strategies such as touch, reassurance, or interior decorating of the room. ***Polkki, Vehvilainen-Julkunen & Pietila (2001)***

Wilkie.D.J(2002) identified that the pain, intensity, pulse rate and respiratory rate were significantly reduced after back massage. The massage group reported higher pain intensity which decreased by 42% compared to 25% reduction in control group.

Melzack and Wall (1965) theorized that the experience of pain can be reduced by competing stimuli such as pressure or cold, because of the fact that these stimuli travel along faster nervous system pathways than pain. In this way, Massage therapy performed with sufficient pressure would create a stimulus that interferes with the transmission of the pain stimuli to the brain, effectively “closing the gate” to the reception of pain before it can be processed.

Massage therapy have an analgesic effect consistent with gate control theory. ***Barbour, McGuire & Kirchhoff, 1986; Field, 1998; Malkin (1994)***.

Massage Therapy may provide its benefits by shifting the Autonomic Nervous system (ANS) from a state of sympathetic response to a state of Para sympathetic response. A sympathetic response of the Autonomic nervous system occurs as an individual's body prepares to mobilize or defend itself when faced with a threat or challenge, and is associated with increased cardiovascular activity, an increase in stress hormones, and feelings of tension. Conversely, the parasympathetic response occurs when an individual's body is at rest and not faced with a threat, or is recovering from a threat that has since passed, and is associated with decreased cardiovascular activity, a decrease in stress hormones, and feelings of calmness and well-being (**Sarafino 2002**).

The Nurse may offer a rub to the clients back during the course of breathing or it is advantageous to help a person relax. A back rub or massage is a useful pain relief measure. Normally the Nurse should take at least three to five minutes to give a thorough back rub. **Potter and Perry (2006)**

When the researcher was posted in surgical wards, she came across post operative children who suffered from moderate to severe post operative pain and other discomforts of Hospitalization. Pain and anxiety is unique to individuals. Hence the researcher proposed a measure to provide a safer, less cost effective complementary therapy in order to reduce the problems of hospitalization among children.

The present study proposes to determine effectiveness of Effleurage back rub on physiologic measures among children admitted in selected post operative wards.

DEPARTMENT OF PEDIATRIC SURGERY

The department of Pediatric Surgery at the Institute of Child Health and Hospital for Children is one of the first to start Pediatric Surgery in India. Presently it has 4 surgical units, a urology unit and a newborn surgical unit. Inpatient bed strength of 150 beds. The surgical turnover is very high and very good surgical care is being provided for children. A large number of complicated surgeries are performed with a high success.

Table 1: Census of Surgical Department

SPECIALITY WISE MAJOR AND MINOR OPERATIONS (2010)

Name of Specialty	Major	Minor	Total
Pediatric Surgery- SI Unit	1239	2272	3511
Pediatric Surgery - SII Unit	1161	2713	3874
Pediatric Surgery – SIII unit	1138	2385	3523
Orthopedic Surgery	358	1313	1671
UROLOGY	376	10	386
TOTAL	4272	8693	12965

Source: Medical Records Department, ICH, Ch – 8

1.2 STATEMENT OF THE PROBLEM

"**Effectiveness of Effleurage back rub on Physiological measures among children admitted in Selected Post operative wards at Institute of Child Health and Hospital, Egmore, Chennai**".

1.3 OBJECTIVES

- To assess the physiological measures among children admitted in Post operative ward before Effleurage back rub.
- To assess the physiological measures among children admitted in Post operative ward after Effleurage back rub.
- To determine the effectiveness of effleurage back rub on physiological measures
- To associate the effectiveness of effleurage back rub on physiologic measures with selected demographic variables.

1.4 HYPOTHESIS

H1 - There will be a significant relationship between effleurage back rub and physiological measures of children admitted in post operative ward.

H2 - There will be a significant association between post test physiologic measures among children admitted in post operative ward with their selected demographic variables.

1.5 OPERATIONAL DEFINITIONS

EFFECTIVENESS

The extent to which the Effleurage back rub has achieved the desired effect in reducing the level of Pain perception, Heart rate, Respiratory rate, Blood pressure among children admitted in selected post operative wards.

EFFLEURAGE BACK RUB

Effleurage back massage is smooth long rhythmic strokes that glide over the skin of the back without attempting to move the deep muscle masses. **(Tappan 1998).** In this study it is given with whole surface of both the hands after applying talcum powder from the lower back to the neck then circling around and back to the lower back for 5 minutes, starting at the lower back in circles first outward then upward using heel of the hand for 3 minutes and with flats of fingers hand on hand massage for 2 minutes.

PHYSIOLOGIC MEASURES

Includes measurement of Heart rate, Respiratory rate, Systolic Blood Pressure, Diastolic blood Pressure and level of Pain perception.

CHILDREN

Subjects who are under the age group of 8 to 12 years and of both sexes

1.6 ASSUMPTION

Effleurage back rub improves sense of well being and reduce the pain perception and thereby reduce the physiologic parameters

1.7 DELIMITATIONS

- The Sample size is limited to 50 children admitted in selected post operative wards
- The study period is only for 4 weeks.

CHAPTER - II
REVIEW OF LITERATURE

"A great literature is chiefly the product of inquiring minds in revolt against the immovable certainties of the Nation"

- ***H. L. MENCKEN***

A review literature is an essential aspect of scientific research. It involves systemic identification location, survey, scrutiny of written materials that contain information on a research problem.

Research and Non-research literature related to the present study is reviewed and organized under the following headings

2.1 Literature related to post operative pain management in children

2.2 Literature related to effects of massage therapy in children

2.3 Literature related to effects of effleurage in children

2.4 Literature related to effects of massage therapy on physiologic measures

2. 1 LITERATURE RELATED TO POST OPERATIVE PAIN MANAGEMENT IN CHILDREN

M Karling.et.al., (June 2002) conducted a study to evaluate the prevalence of acute and postoperative pain in children; extent of, and reasons for, inadequate pain therapy; therapy methods; pain-management structure; and the need for education of healthcare professionals. Questionnaires concerning these points were sent to all departments involved in the treatment of children. The response rate was 75%. Answers from physicians and nurses showed that despite treatment, moderate to severe pain occurred in 23% of patients with postoperative pain and 31% of patients with pain of other origin. Postoperative pain seemed to be a greater problem in units where children were treated along with adults and in departments where fewer children were treated. According to 45% of physicians and nurses, treatment of pain could often or always be managed more efficiently. Pain assessments were performed regularly in 43% of all departments, but pain measurement was less frequent; 3% of the departments had no formal organization for pain management. Author concludes that educational needs were

high. Insufficient pain treatment seemed to be mostly related to organizational aspects, such as inadequate prescriptions. Anxiety in children or parents also contributed to ineffective pain treatment.

***David M. Steinhorn.et.al., (2008*)** conducted a study to prove that Massage Reduces Pain and Distress in Pediatric Chronic-Pain Patients**.** The median age of participants was 13.9 years, with ages ranging from 9 to 19 years. The subjects were diagnosed with chronic pain, abdominal pain, back pain, ear pain. The massage intervention consisted of compression, fascial glide, petrissage, tapotement and effleurage and trigger-point therapy. A “no intervention” time period took place in a subset of 25 patients, in order to collect control data. Subjects were assessed before and after the intervention by both a pain physician and massage therapist. Participants also rated their levels of distress, pain, tension, discomfort and degree of mood on a scale of one to five before and after each session. Following the massage, the massage group reported highly significant improvements in their levels of distress, pain, tension, discomfort and mood compared with their pre-massage ratings.“The results clearly demonstrate that massage, as an adjunct therapy for pain management, is worth investigating in the chronic pediatric pain patient population

Wang HL, Keck JF (2004) conducted a study to determine the effect of Foot and hand massage as an intervention for postoperative pain. Massaging the feet and hands stimulates the mechanoreceptors that activate the "non painful" nerve fibers, preventing pain transmission from reaching consciousness. The purpose of this pretest-posttest design study was to investigate whether a 20-minute foot and hand massage (5 minutes to each extremity), which was provided 1 to 4 hours after a dose of pain medication, would reduce pain perception and sympathetic responses among postoperative patients. Statistically significant decreases in sympathetic responses to pain (i.e., heart rate and respiratory rate) were observed although blood pressure remained unchanged. The changes in heart rate and respiratory rate were not clinically significant. The patients experienced moderate pain after they received pain medications. This pain was reduced by the intervention, thus supporting the effectiveness of massage in postoperative pain management. Foot and hand massage appears to be an effective, inexpensive, low-risk, flexible, and easily applied strategy for postoperative pain management.

Ali s (2010) studied about the Pain management of musculoskeletal injuries in children. In the pediatric emergency setting, musculoskeletal injuries are one of the most common painful presentations. There is growing evidence that, in addition to pharmacological therapy, non pharmacological methods can be introduced to improve analgesia. Traditionally, acetaminophen with codeine has been used to treat moderate orthopedic injury-related pain in children. Non pharmacological therapies are emerging as commonly used treatment options by parents and adjuncts to analgesic medication. Author concludes that there is a need to optimize the measurement, documentation, and treatment of pain in children that there is evidence that non pharmacological methods can be introduced to improve analgesia in the Emergency department, and efforts to help parents implement these methods at home.

Jahja R et al (2010) studied about the nurses' use of non-pharmacological methods in children's postoperative pain management. Non-pharmacological methods have been shown to be effective in relieving pain; however, many barriers, including lack of knowledge, limit nurses' use of these methods. Quasi-experimental one-group pre- and post-test design was used. Questionnaire surveys were conducted with a convenience sample of 108 Registered Nurses in two public hospitals in Singapore in 2008.Author concludes that Statistically significant increases were found in nurses' self-reported use of imagery, positive reinforcement, thermal regulation, massage and positioning in the post intervention survey. Author concludes that the educational intervention had a positive effect on nurses' use of several non-pharmacological methods. Regular dissemination of updated information to nurses on these pain management methods is recommended to maintain the positive changes.

Rasha Srouji, et al (2010) studied about Pain in Children: Assessment and Non pharmacological Management**.** Pain perception in children is complex, and is often difficult to assess. Results showed that age specific non pharmacological interventions used to manage pain in children are most effective when adapted to the developmental level of the child. Distraction techniques help in pain alleviation during procedures. Studies demonstrate pain management in children remains undertreated. It is the responsibility of health care professionals to educate their peers and advocate for appropriate pain treatment in children. Infants and children present a unique challenge

that necessitate consideration of their age, developmental level, cognitive and communication skills, previous pain experiences, and associated beliefs. Investigators conclude that there is a need for more research to illuminate optimal pain management and strategies that take these special needs into consideration, to improve the treatment of pain in children.

Erin Bicek (2004) studied about the Nurses' Attitudes, Knowledge, and Use of Non pharmacological Pain Management Techniques and Therapies**.** As Nurses and physicians interact with patients and families, they assess and treat their pain. Nurses and physicians attitudes and knowledge of pain management can affect their patient's treatment options. Most of the time drugs are prescribed to relieve the pain including narcotics and non-steroidal anti-inflammatories. However, pain is often under-treated and patients continue to suffer from the ill effects of pain and lack of management. Non pharmacological education makes a difference in nurses' use of these therapies. In order to realize the importance of using non pharmacological therapies, nurses need more knowledge and experience using non pharmacological methods.

Tarja Pölkki et al (2009) studied about Hospitalized children's descriptions of their experiences with postsurgical pain relieving methods. The purpose of this study was to describe children's (aged 8–12 yr) experiences with postsurgical pain relieving methods, and their suggestions to nurses and parents concerning the implementation of pain relief measures in the hospital. The data were collected by interviewing children (N=52) who were inpatients on a pediatric surgical ward in the university hospital of Finland. The children rated the intensity of pain on a visual analogue scale. The results indicated that all of the children used at least one self-initiated pain relieving method (e.g. distraction, resting/sleeping), in addition to receiving assistance in pain relief from nurses (e.g. giving pain killers, helping with daily activities) and parents (e.g. distraction, presence). The children also provided suggestions, especially as it relates to nurses (e.g. creating a more comfortable environment), regarding the implementation of effective surgical pain relief. Most children reported their worst pain to be severe or moderate, which indicates that pain management in hospitalized children should be more aggressive.

***Gilbert CA*, *et al* (1999)** studied about the Postoperative pain expression in preschool children: validation of the child facial coding system..The purposes of the study were threefold: (a) to determine whether a measurement system based on facial expression would be useful in the assessment of post-operative pain in young children; (b) to examine construct validity in terms of structure, consistency, and dynamics of the facial display; and (c) to evaluate concurrent validity in terms of associations with global judgments of the children's pain. RESULTS: Facial expressions were characterized primarily by the following constellation of actions: open lips, lowered brows, a deepened nasolabial furrow, mouth stretched wide in both horizontal and vertical directions, eyes squeezed shut or squinted, and raised cheeks. Facial action summary scores were correlated with a visual analog rating of global pain, confirming that the Child facial coding system has convergent validity. Authors conclude that the CFCS serves as a valid measurement tool for persistent pain in children.

***Jacob E*, *Puntillo KA* (1999)** conducted a survey of Nursing practice in the assessment and management of pain in children. The purpose of this study was to describe nurses' perceptions of their practices in the assessment and management of pain in children. Questionnaires were distributed to 260 nurses in a pediatric hospital in the western United States. Results showed that nurses are not consistently assessing pain in children, and pain management practices are not based on systematic assessment. The most frequently reported tool for assessing pain was the numeric rating scale. Children experience a variety of painful procedures during hospitalization, but nurses reported that they are not consistently administering analgesics for painful procedures. Although rarely used, distraction and relaxation techniques were the most frequently reported non pharmacological interventions. Although nurses did not feel that there were factors preventing them from assessing or managing pain in children, their practices revealed both that they are not using developmentally appropriate tools for assessing pain, and they have not maximized the use of management strategies for controlling pain.

2.2 LITERATURE RELATED TO EFFECTS OF MASSAGE THERAPY IN CHILDREN

Barbour, McGuire, & Kirchhoff, (1986) Field (1998) Malkin(1994) studied that massage therapy performed with sufficient pressure would create a stimulus that interferes with the transmission of the pain stimuli to the brain, effectively "**closing the gate**" to the reception of pain before it can be processed. Results showed that massage therapy may have an analgesic effect consistent with gate control theory.

Christopher A. Moyer et al (2010) conducted a quantitative study to determine whether massage therapy reduces cortisol. It is frequently asserted that massage therapy (MT) reduces cortisol levels, and that this mechanism is the cause of Massage therapy benefits including relief from anxiety, depression, and pain. The lone exception is MT's multiple-dose effect in children, which is larger (d = 0.52) and statistically significant, massage therapy's effect on cortisol is generally very small and, in most cases, not statistically distinguishable from zero. As such, it cannot be the cause of Massage therapy's well-established and statistically larger beneficial effects on anxiety, depression, and pain. Author concluded that other causal mechanisms, which are still to be identified, must be responsible for Massage therapy clinical benefits.

Field (1998) studied that the pressure applied during Massage therapy may stimulate vagal activity which in turn leads to a reduction of stress hormones and physiological arousal, and a Subsequent parasympathetic response of the Autonomic Nervous system. Massage therapy stimulating a parasympathetic response through physiological means, may promote reductions in anxiety, depression, and pain that are consistent with a state of calmness.

Diego MA, Field T (2009) studied about the Moderate pressure massage and parasympathetic nervous system response. Twenty healthy adults were randomly assigned to a moderate pressure or a light pressure massage therapy group, and EKGs were recorded during a 3-min baseline. During the 15-min massage period and during a 3-min post massage period, EKG data were then used to derive the high frequency (HF), low frequency (LF) components of heart rate variability and the low to high frequency ratio (LF/HF) as non invasive markers of autonomic nervous system activity. The

participants' who received the moderate pressure massage exhibited a parasympathetic nervous system response characterized by an increase in High frequency, suggesting increased vagal efferent activity and a decrease in the LF/HF ratio, suggesting a shift from sympathetic to parasympathetic activity that peaked during the first half of the massage period. On the other hand, those who received the light pressure massage exhibited a sympathetic nervous system response characterized by decreased High frequency and increased Low frequency /High frequency ratio.

Gauthier DM (1999) summarized the studies that have evaluated the effect of massage on psycho physiologic outcome measures. Research demonstrated that back massage has the ability to elicit a relaxation response in the majority of study subjects. The experience of illness and/or hospitalization often elicits a stress response which may manifest as sleep disturbances, increased heart rate, increased systolic and diastolic blood pressure, anxiety and general discomfort. The diagnosis and treatment of a person's response to illness or other event is a keytenet of nursing. The well-established nursing intervention, back rub or back massage, has been utilized as a time-honored comfort measure. Author concludes that this research review summarizes the studies that have evaluated the effect of massage on psycho physiologic outcome measures. Research demonstrates that back massage has the ability to elicit a relaxation response in the majority of study subjects.

Field, T et al (1992) studied that Massage reduces anxiety in child and adolescent psychiatric patients. A 30-minute back massage was given daily for a 5-day period to 52 hospitalized depressed and adjustment disorder children and adolescents. Compared with a control group who viewed relaxing videotapes, the massage subjects were less depressed and anxious and had lower saliva cortisol levels after the massage. In addition, Nurses rated the subjects as being less anxious and more cooperative on the last day of the study, and nighttime sleep increased over this period.

Hughes et al. (2008) evaluated massage as a supportive care intervention for children with cancer. Review concluded that light to medium pressure massage may help reduce pain, anxiety, depression, constipation and high blood pressure in children with cancer. Furthermore they found that massage could help support the function of the

immune system during periods of immune suppression following cancer treatments such as chemotherapy

Mary brown (2000) studied the benefits of Massage therapy and therapeutic touch in children. Studies were divided according to developmental age for analysis: neonates, preschool, and older children. Five therapeutic touch studies, 3 quantitative and 2 qualitative, were selected because they were the only empirical reports about the effect of therapeutic touch in children to date. More research exists to support the use of massage therapy than therapeutic touch in children. Author concludes that a set of common findings across 2 decades of study suggests that massage therapy may be useful in the care of infants and children. Because massage therapy and therapeutic touch seem to elicit similar parasympathetic effects, therapeutic touch may be useful.

Hernandez-Reif, M., Field et al (2005) Studied that Cerebral Palsy symptoms in children decreased following massage therapy.. Twenty young children with Cerebral Palsy (CP) recruited from early intervention programs received 30-minutes of massage or reading twice weekly for 12 weeks. Results showed that the children receiving massage therapy showed fewer physical symptoms including reduced spasticity, less rigid muscle tone overall and in the arms and improved fine and gross motor functioning. In addition, the massage group had improved cognition, social and dressing scores on the Developmental Profile and they showed more positive facial expressions and less limb activity during face-to-face play interactions

Nilsson S et al (2010) studied about the effect of Massage therapy in post-operative rehabilitation of children and adolescents with cerebral palsy. Three participants were randomized to massage therapy and another three participants to rest. All children had undergone surgery in one or two lower limbs. Pain, wellbeing, sleep quality, heart rate and qualitative data were collected for each child. RESULTS: The scores of pain intensity and discomfort were low in all participants. Heart rate decreased in participants who were randomized to rest, but no change was found in the massage therapy group.

2.3 LITERATURE RELATED TO EFFECTS OF EFFLEURAGE IN CHILDREN

Labyak SE, Metzger BL(Jan/Feb 1997) studied the effects of effleurage backrub on the Physiological Components of Relaxation. Results showed that effleurage backrub is associated with a reduction in Heart rate and Respiratory rate and that the consistently positive effects include a reduction in Heart rate and Respiratory rate across all subjects. Overall, the findings suggest that effleurage backrub of at least three minutes in duration are a non pharmacological form of Nursing therapy that promotes biological and subjective relaxation.

Benjamin (2005) studied that the effleurage stroke, when applied with moderate pressure, slowly and smoothly on the back, may stimulate the parasympathetic Nervous system and evokes the relaxation response. Nurses are taught to use rhythmic effleurage strokes to provide comfort, relaxation, induce sleep, and reduce anxiety in the ill patient (Potter & Perry, 2001)

2.4 REVIEWS RELATED TO THE EFFECTS OF MASSAGE THERAPY ON PHYSIOLOGIC MEASURES

Cady & Jones et al (1997) **Back** massage can elicit short term (usually measured within 15 minutes after end of massage) decreases in both systolic and diastolic blood pressure. **Hernandez-Reif and colleagues (2000)** evaluated the effects of applied massage for 30 minutes, three times a week which resulted in diastolic blood pressure changes over time. **Mok and Woo (2004)** found significant systolic and diastolic changes, applying a 10-minute back massage for seven evenings and measuring pre and post intervention at day 1, day 7 and three days after stopping the application.

Sheleigh Lawler & Linda cameron et al (2002) assessed the effectiveness of massage therapy as an intervention for coping with stress in healthy university students approaching final examinations. Participants were randomly assigned to an attention control condition (watching 3 different television programmes) or to a massage therapy group, who received one 45-minute massage per week for 3 consecutive weeks. Measures of blood pressure, heart rate, and state anxiety were taken before and after

each of the sessions. Stress and coping were measured three times at baseline, immediately after the three sessions and at one week follow up. Both groups reported lower anxiety after each of the sessions; however, the massage group had a greater reduction in comparison to the television group ($p < .05$). The massage group had a lower heart rate after each of the massages, while the television group showed no change ($p < .05$). No significant differences between the groups for systolic and diastolic blood pressure. The massage group reported a significant decrease in perceived stress and an increase in coping efficacy ($p < .05$).

. ***McCaffery and Pasero (1999)*** stated that relaxation may work to relieve pain because of the reduced muscle tension. Relaxation techniques included relaxation imagery, which involves a person imaging a pleasant or peaceful experience. Others also included music, massage and slow breathing. When a person is relaxed, their heart rate, blood pressure, and respirations decreases (Titler & Rakel, 2001). Massage is another type of a cutaneous therapy to relieve pain. According to McCaffery and Pasero (1999), the back and shoulders are the areas typically massaged. In a study of terminally ill patients, a three-minute slow back rub lowered blood pressure indicating relaxation and less pain.

Moyer et al (2004) conducted a study to test the effectiveness of Massage therapy. Mean effect sizes were calculated from 37 studies for 9 dependent variables. Single applications of Massage therapy reduced state anxiety, blood pressure, and heart rate but not negative mood, immediate assessment of pain, and cortisol level. Multiple applications reduced delayed assessment of pain. Author concludes that the reductions of trait anxiety and depression were Massage therapy's largest effects.

Alan David Kaye (2008) Evaluated the effect of Deep-Tissue Massage on Blood Pressure and Heart Rate**.** All participants had significant pain prior to the study and experienced moderate or severe overall muscle spasm/strain. Prior to the massage, baseline diastolic, systolic and mean arterial blood pressure and heart rate were measured via an automatic blood-pressure cuff. The blood-pressure and heart-rate data was stored electronically. Each participant then received a deep-tissue massage between 45 and 60 minutes in duration. Data collected from the completion of the study showed an average systolic pressure reduction of 10.4 millimeters of mercury, a diastolic pressure reduction of 5.3 millimeters of mercury and a mean arterial pressure reduction of 7.0 millimeters of

mercury. Results of the heart-rate data showed an average heart-rate reduction of 10.8 beats per minute.

David M. Steinhorn (2006) conducted a study to determine whether five-minute foot massages can reduce heart rate, blood pressure and respiration rate while increasing heart rate variability (HRV) and peripheral oxygen saturation in pediatric intensive care patients. Sixty participants between the ages of 3-17 who do not have any presenting heart conditions will be recruited for this study. While measuring the effectiveness of a five-minute foot massage on physiological signs of tension and stress, the researchers hope the findings will have a profound impact on how massage therapy is both viewed and implemented in a pediatric hospital setting. The long-term objective is that massage therapy be introduced and utilized in a safe, practical and non-invasive approach in decreasing anxiety and length of hospital stay.

***Diego MA, Field T, Hernandez-Reif M (2009*)** studied about heart rate responses in massaged preterm infants. Heart rate (HR) responses to the removal of a monitoring lead were assessed in 56 preterm infants who received moderate pressure, light pressure or no massage therapy. The infants who received moderate pressure massage therapy exhibited lower increases in HR suggesting an attenuated pain response. The heart rate of infants who received moderate pressure massage also returned to baseline faster than the heart rate of the other two groups, suggesting a faster recovery rate.

CONCEPTUAL FRAMEWORK

The conceptual framework for research study presents the measurement on which the purposes of the proposed study are based. The framework provides the prospective from which the investigator views the problem. The study is designed to assess the effectiveness of effleurage back rub on physiologic measures admitted in selected postoperative wards.

The study is based on the concept to assess the physiologic measures before and after effleurage and to determine the effect of the effleurage back rub. The investigator adopted the **Widenbach's Theory of helping art of clinical Nursing**, 1964 for conceptual framework.

Widenbach's prescriptive theory directs toward an explicit goal. It consists of three factors central purpose, prescription and realities. A Nurse develops a prescription based on a central purpose and implements it according to the realities of the situation.

According to this theory, Nursing practice consists of three steps, which include

Step I: Identifying the need for help

Step II: Ministering the needed help

Step III: Validating that the need for help was met

This theory views Nursing as an art based on a goal (or) central purpose. It consists of three factors: Central purpose, prescription and realities.

Central Purpose

It refers to what the Nurse wants to accomplish

Nursing practice

Steps involved are identifying the need for help, administering the needed help and validating that the need for help was met.

In this study

The main central purpose is to assess the effectiveness of effleurage back rub on physiologic measures among children admitted in selected post operative wards.

Step-I Identifying the need for help

Nurse identifies the need for help by selecting the samples based on criteria for sample selection.

Step-II Ministering the needed help

This refers to the provision of required help for the identified need. It has two components (i) Prescription and (ii) Realities.

Prescription:

Refers to the plan of care for a patient.

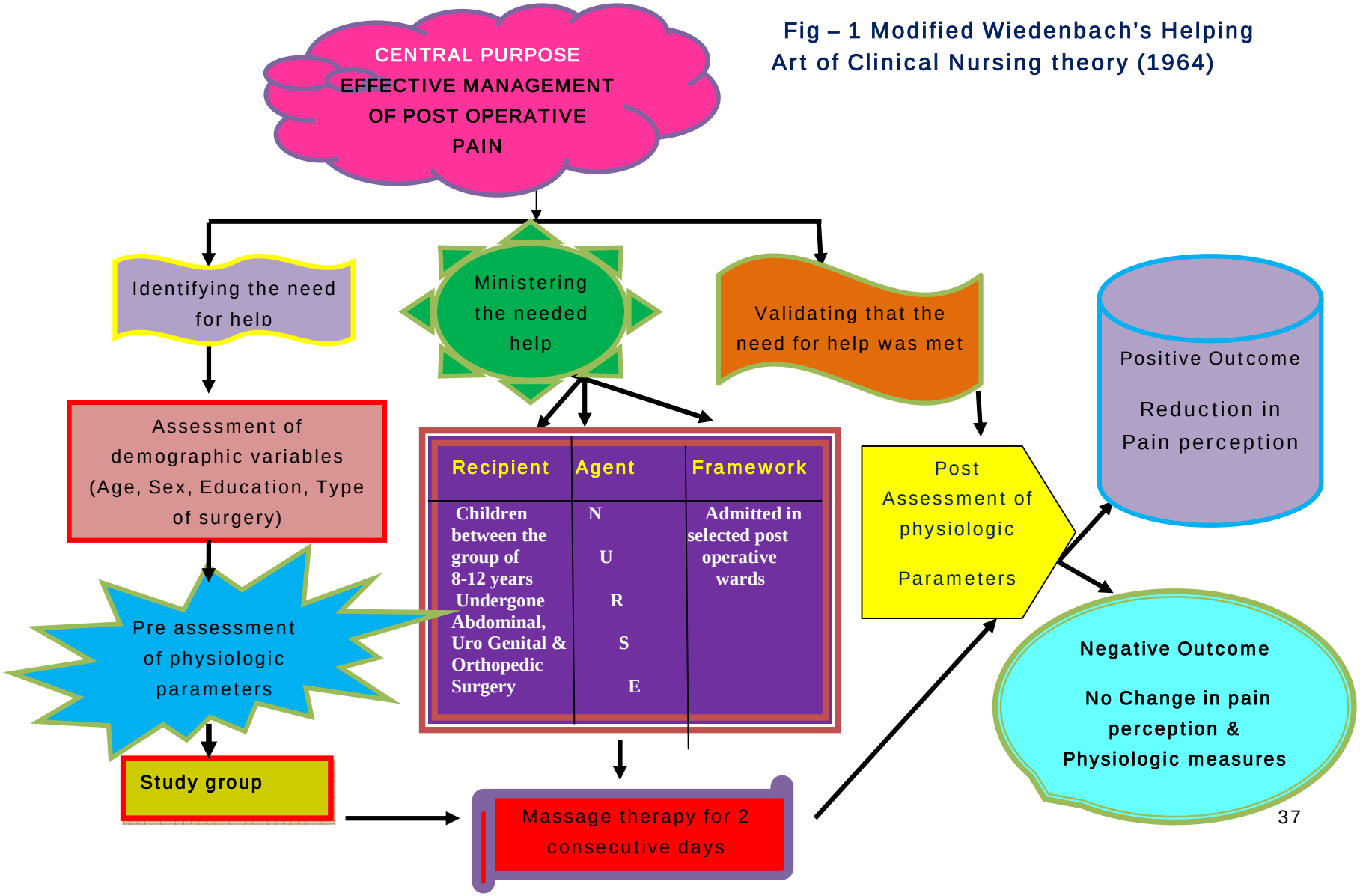
Realities

Refers to the physical, physiologic, emotional and spiritual factors that come in to play in a situation involving Nursing actions. The five realities identified are agent, recipient, goal, means and framework. Administers help by providing a therapeutic back massage to reduce the pain perception level and other physiologic parameter such as Heart rate, Respiratory rate and Blood pressure.

Step III Validating that the need for help was met

She validates the ministered help by comparing the pre and post assessment of the physiological parameters.

Fig – 1 Modified Wiedenbach's Helping Art of Clinical Nursing theory (1964)



CHAPTER - III

RESEARCH METHODOLOGY

"Every disclosure, even a poetic or oracular sentence carries a system of rules for producing analogous things and thus an outline of methodology"

- ***Jacques Dernida***

Research Methodology is designed to develop or refine methods of obtaining, organizing or analyzing data ***(Polit, 2008).*** Research methodology involves the systematic procedure by which the researcher starts from the time of initial identification of the problem to its final conclusion.

Research methodology includes the research design, variables of the study, setting, population, sample criteria for sample selection, sampling technique, sample size, development and description of tool, scoring procedure and procedure for data collection and plan for statistical analysis.

3.1 RESEARCH APPROACH AND DESIGN

Research Approach is the whole design which includes the researcher position and assumptions, the process of enquiry and the way data is collected and analyzed. In this study to accomplish objective of the study the investigator used quantitative approach.

Research design helps in the selection of the subjects, identification of variables, their manipulation and control, observations to be made and type of statistical analysis to interpret the data. Selection of design is based on the purpose of the study. The research design selected for the present study was **Quasi Experimental one group pre test post test design.**

O_1 ---------- X---------- **O_2**

O_1 - Collection of Demographic data. Assessment of Physiological measures before intervention.

X - Intervention - Effleurage back massage is given for 10 minutes twice a day for 2 consecutive days

O_2 - Assessment of Physiological measures after Intervention

3.2 STUDY SETTING

Setting refers to the physical location and condition where the data collection is being carried out. The study was conducted in selected post operative wards at Institute of child Health & Hospital for children, Egmore, Chennai-600 008. It is 537 bedded hospital catering to the needs of poor and needy. The bed occupancy rate is 125%, Average length of stay of a patient is 7 days. Institute of child health & hospital for children is the second biggest hospital in south East Asia providing care exclusive for children. The institute rendering meritorious service & has been providing an avenue for research in the field of child health.

3.3 VARIABLES

Independent variable - Effleurage back rub

Dependent variable - Physiologic measures

3.4 STUDY POPULATION

The target population for this study includes children of both sexes between the age group of 8-12 years admitted in Selected Post operative ward at Institute of Child health and Hospital for Children, Egmore, Chennai -600 008.

3.5 SAMPLE SIZE

Sample consists of 50 children in the age of group of 8-12 years admitted in Post operative ward at ICH and Hospital for children, Egmore, Ch-8.

3. 6 SAMPLING TECHNIQUE

Convenience sampling technique was used for this study. According to Polit and Hungler “Convenience sampling is the selection of the most readily available persons as participants in a study also called Accidental sampling”

3. 7 CRITERIA FOR SAMPLE SELECTION

The sample was selected based on the following inclusion and exclusion criteria.

i) Inclusion Criteria

- Children in the age group of 8-12 years who do not have any presenting heart conditions.
- Children in second and third post operative day undergone Abdominal, Uro genital and Orthopaedic surgeries
- Children belonging to both sexes.
- Parents of children who are willing to participate

ii) Exclusion Criteria

- Children with contra indications for massage like skin lesions or burns
- Children with Juvenile arthritis and Spondylitis
- Children who are mentally challenged
- Children who are critically ill and unconscious
- Parents of children who are not willing to participate

DEVELOPMENT OF THE DATA COLLECTION INSTRUMENT

Data collection tools are the procedures or instruments used by the researcher to observe or measure the key variables in the research problem. Observational methods are the techniques for acquiring information for research purposes through direct observation and recording of phenomena.

The following steps were adopted in the development of the tool:

1. Review of literature provided adequate content for the tool preparation.
2. Direct contact with the patients and significant others during clinical posting.
3. Opinion of experts from medicine, surgery and nursing departments.
4. Construction of tools
5. Content validity.
6. Pre-testing of the tool**.**
7. Reliability of the tool and instruments used was ascertained by rater-interrater reliability

3.8 DESCRIPTION OF THE TOOL

SECTION - A

This section deals with Demographic data which includes Childs Age, sex, educational status, type of surgery, Post operative Day**.**

SECTION – B

It consisted of assessment of the physiologic measures such as Heart rate, respiratory rate, systolic and diastolic blood pressure before and after effleurage back rub.

SECTION - C

It consisted of measurement of pain perception using Visual Analog Numeric Pain Scale Consisted of 0 - 10 Scores. It consists of 10 cm base line at 1 cm interval ranging from 0-10. The visual analog numeric pain scale was explained to the samples subjects and asked to respond to the visual analog scale before and after effleurage back Massage.

0 - No pain
1- 3 - Mild Pain
4- 6 - Moderate Pain
7 – 9 - Severe Pain
10 - Worst pain possible

ETHICAL CONSIDERATION:

This study was conducted after the approval from the ethical committee Madras Medical College Chennai-3.All respondents were carefully informed about the purpose of the study and their part during the study and how the privacy was guarded. Ensured confidentiality of the study result. Thus the investigator followed the ethical guidelines, which were issued by research committee. Written permission was obtained from all participants.

TESTING OF THE TOOLS

CONTENT VALIDITY

The content of the tool was validated by the experts in the field of Medicine and Nursing. The suggestions of the experts were incorporated in the study. Minimal modifications were made in the tools and the tool was finalized. The refined tool was used for data collection and content validity was obtained.

RELIABILITY

After pilot study, reliability of the tool was assessed by using interrater reliability correlation coefficient value is 0.80. This correlation coefficient is very high and it is good tool for assessing effectiveness of Effleurage back rub on Physiological measures among children admitted in Selected Post operative wards.

3. 9 DEVELOPMENT OF PROTOCOL FOR MASSAGE

A protocol was developed for administering Effleurage back rub. Based on the review of literature steps of the procedures have been developed. The content of massage therapy was also validated by the experts.

3.10 PILOT STUDY

The pilot study was conducted after getting formal administrative permission and ethical clearance. The pilot study was conducted in selected post operative wards at Institute of Child Health & Hospital for Children, Chennai-8 for the period of one week. Formal permission was obtained from the Director of Institute of child health & hospital for children, Egmore, and from the Head of the Department of Pediatric surgery. Six samples those who fulfilled the inclusion criteria were chosen by using convenient sampling technique. Informed consent was obtained from the mothers of the sample and data was collected for 2 consecutive days. The instrument was found reliable for proceeding with the main study. The other opinion and suggestion were incorporated in the main study to accomplish the objectives of the study.

3. 11 DATA COLLECTION PROCEDURE

Initially the permission was obtained from Director of Institute of child health & hospital for children, Egmore and from the Head of the Department of Pediatric surgery. The main study was conducted from 29.08.11 to 29.09.11

Researcher identifies the child based on inclusion criteria followed by admission of the child, investigator introduces herself, develops a good rapport with the child and his/her parents. The history of child's medical illness collected from the parents. The child and the parents were explained about the purpose of the study. Informed consent was obtained from the parents prior to the massage.

1. Assessment of the Physiological measures prior to the Effleurage back rub.
2. Following pre test, child made to sit/lie on a firm comfortable bed with privacy.
3. Verified the child regarding comfort and willingness to get massaged.
4. Helped the child to lose dress at the back, expose the area to be massaged.
5. 10 min effleurage back rub using talcum powder was given to the child using both hands.

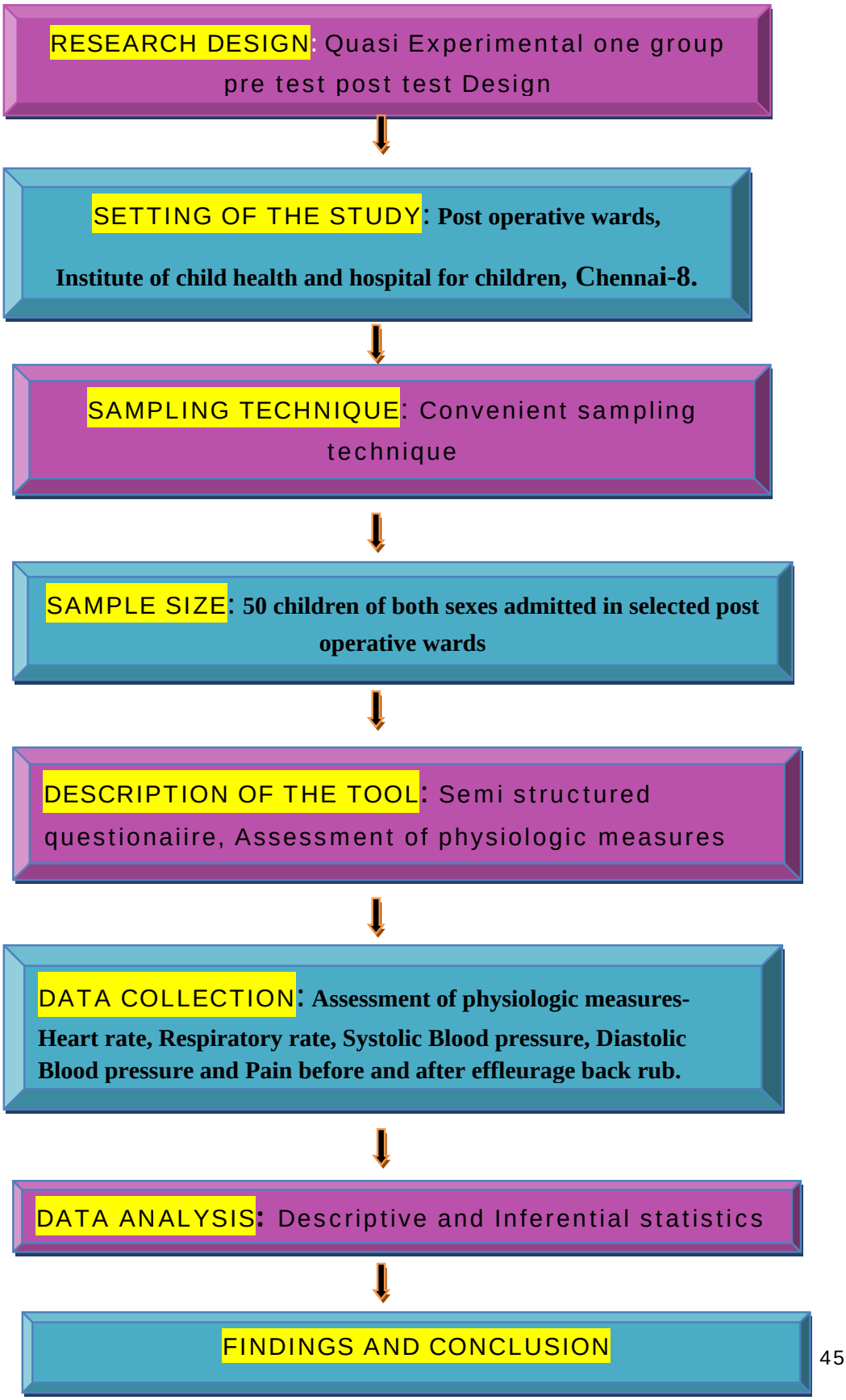
   Effleurage – Soothing, long, gliding strokes made with entire flat surface of the hand that was deep or superficial. In this study it is given with whole surface of both the hands after applying talcum powder from the lower back to the neck then circling around and back to the lower back for 5 minutes, starting at the lower back in circles first outward then upward using heel of the hand for 3 minutes and with flats of fingers hand on hand massage for 2 minutes.
6. After the completion of back massage the child was helped to redress completely with his/her own clothes.
7. The post assessment of Physiologic measures after 10 minutes of intervention was documented.
8. Effleurage was given twice a day in the morning and evening for 2 consecutive days and findings were documented for data analysis.

3.12 PLAN FOR DATA ANALYSIS

After the data collection, the collected data were organized, tabulated, summarized and analyzed. The data were analyzed according to objectives of the study by using descriptive and inferential statistics.

- Demographic variables in categories were given in frequencies with their percentages.
- Physiological parameters were given in mean and standard deviation.
- Association between demographic variables and parameters score was analysed using Pearson chi-square test.
- Difference between group score was analysed using student's dependent t-test.
- Differences between pre and post score was analyzed using proportion with 95% CI and mean difference with 95% CI.
- Simple bar diagram, pie diagram, percentage bar diagram were used to represent the data.
- $P < 0.05$ was considered statistically significant. All statistical tests are two tailed test.

FIG-2 SCHEMATIC REPRESENTATION OF THE PLAN



CHAPTER – IV
DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis of data collected from 50 children in the age group of 8-12 years admitted in the selected post operative wards, at Institute of Child Health and Hospital for children, Egmore, Chennai-8. The data findings have been tabulated and interpreted according to the plan for data analysis.

ORGANIZATION OF THE DATA

SECTION - I **:** Description of demographic profile of selected samples

SECTION - II **:** Description of Physiologic measures of selected samples before and after Effleurage back rub using Mean and Standard Deviation.

SECTION -III **:** Description of the effectiveness of Effleurage back rub on Physiologic measures among selected samples

SECTION-IV **:** Association between post test physiologic measures and selected Demographic variables among selected samples.

SECTION- I

DESCRIPTION OF DEMOGRAPHIC VARIABLES

TABLE 2: Frequency and percentage distribution of demographic variables among selected samples.

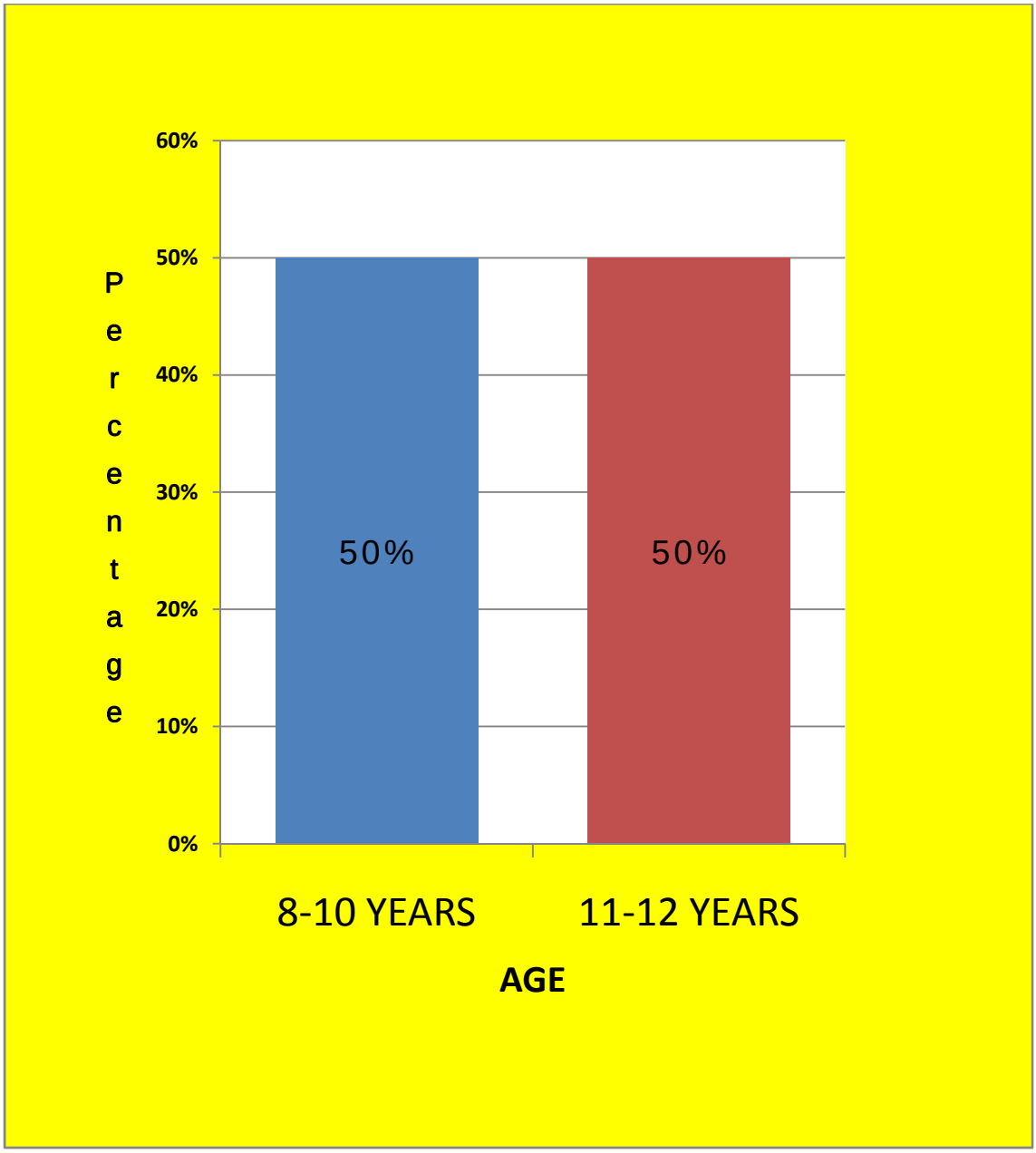
S.NO	*DEMOGRAPHIC VARIABLES*	*CATEGORIES*	*FREQUENCY N=50*	*PERCENTAGE*
1	Age of child	a)8-10 years b) 11-12 years	25 25	50.0% 50.0%
2	Sex	a) Male b) Female	32 18	64.0% 36.0%
3	Education status	a) Primary school b) High school c)No school education	23 18 9	46.0% 36.0% 18.0%
4	Type of surgery	a) Orthopedic surgery b) Abdominal surgery c) Uro genital surgery	4 29 17	8.0% 58.0% 34.0%
5	Number of post operative day	a) 2nd Post operative day b)3rd Post operative day	33 17	66.0% 34.0%
6	Administration of Analgesics	Intravenous Intramuscular Rectal suppository	0 4 46	0.0% 8.0% 92.0%
7	Factors aggravating pain	a)Movement b)Pressing/touching c)Movement+posture	30 5 8	60.0% 10.0% 16.0%

		d)Movement+pressing	7	14.0%

Table 2 Reveals the frequency and percentage distribution of demographic variables of selected samples.

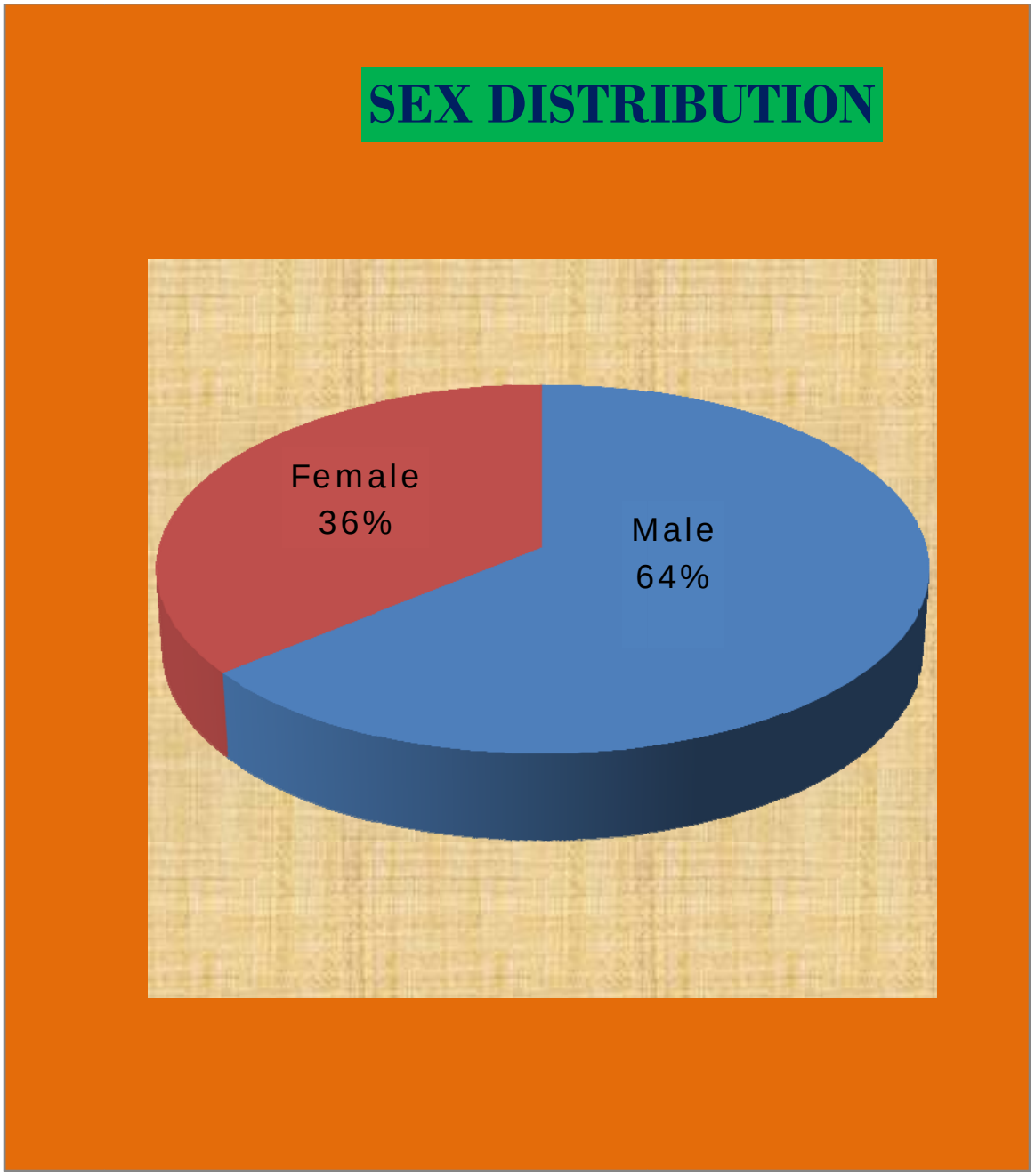
Equal proportions of the children 25 (50%) were in the age group of 8-10 years and 25 (50%) belongs to the age group of 11-12 years, majority of the study subjects 32 (64%) were male children. Highest percentage 23 (46 %) of selected samples had primary school education. Among the selected subjects 29 (58%) have undergone abdominal surgery, 17 (34%) have undergone Urogenital surgery and only 4(8 %) have undergone orthopedic surgery. Highest proportion of children 33 (66%) were found to be in the second post operative day and majority of children 46 (92 %) were found to receive analgesics rectally. Regarding the aggravating factors of pain, majority of the children 30 (60%) verbalized that movement aggravates pain.

Figure 3: Distribution of Sample Percentage According To Age



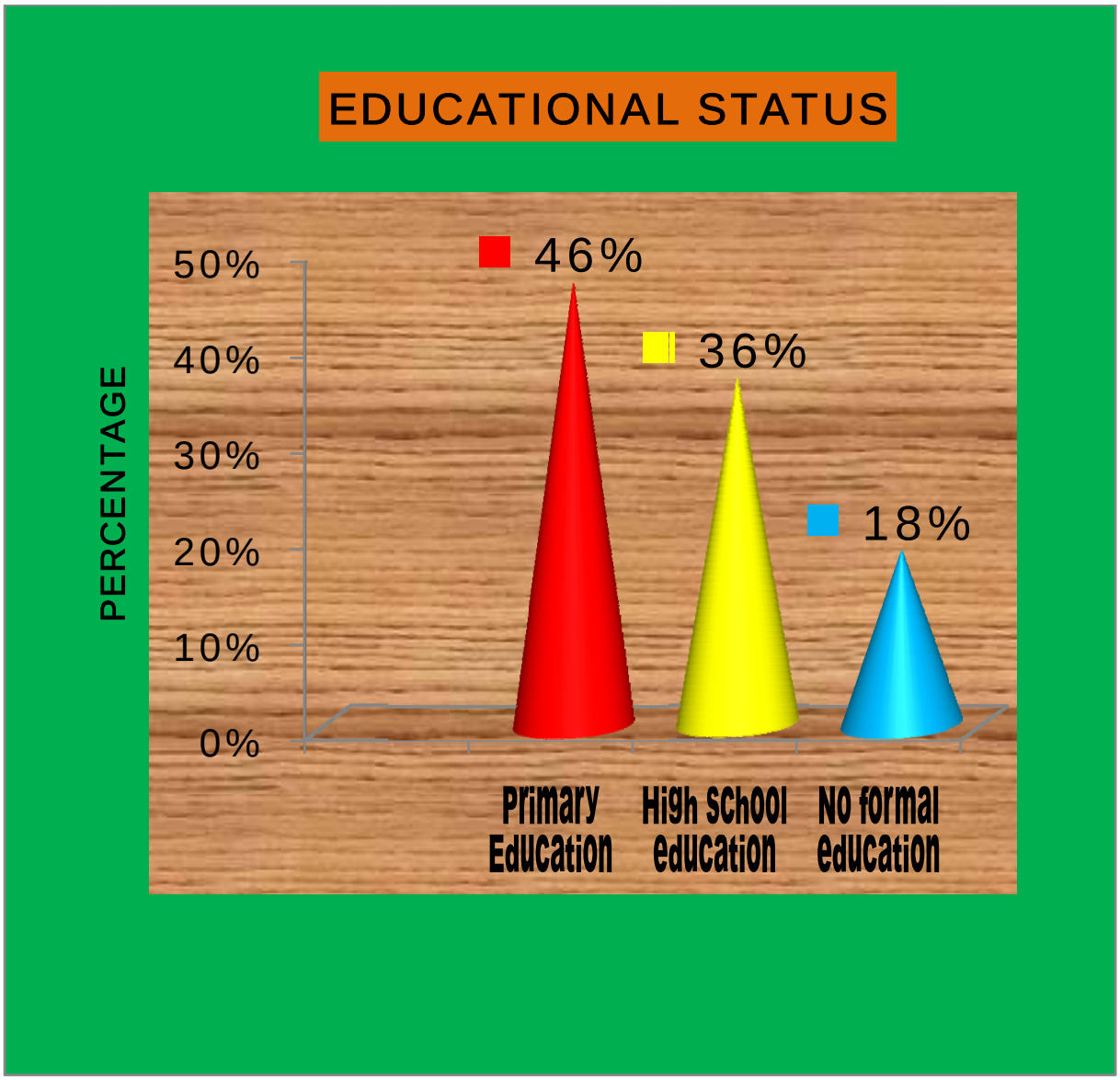
Above figure 3 Reveals that equal proportion of selected samples 25 (50%) were in the age of 8-10 years and 25 (50 %) were in the age group of 11-12 years.

Figure 4: Distribution of Sample Percentage According to Sex



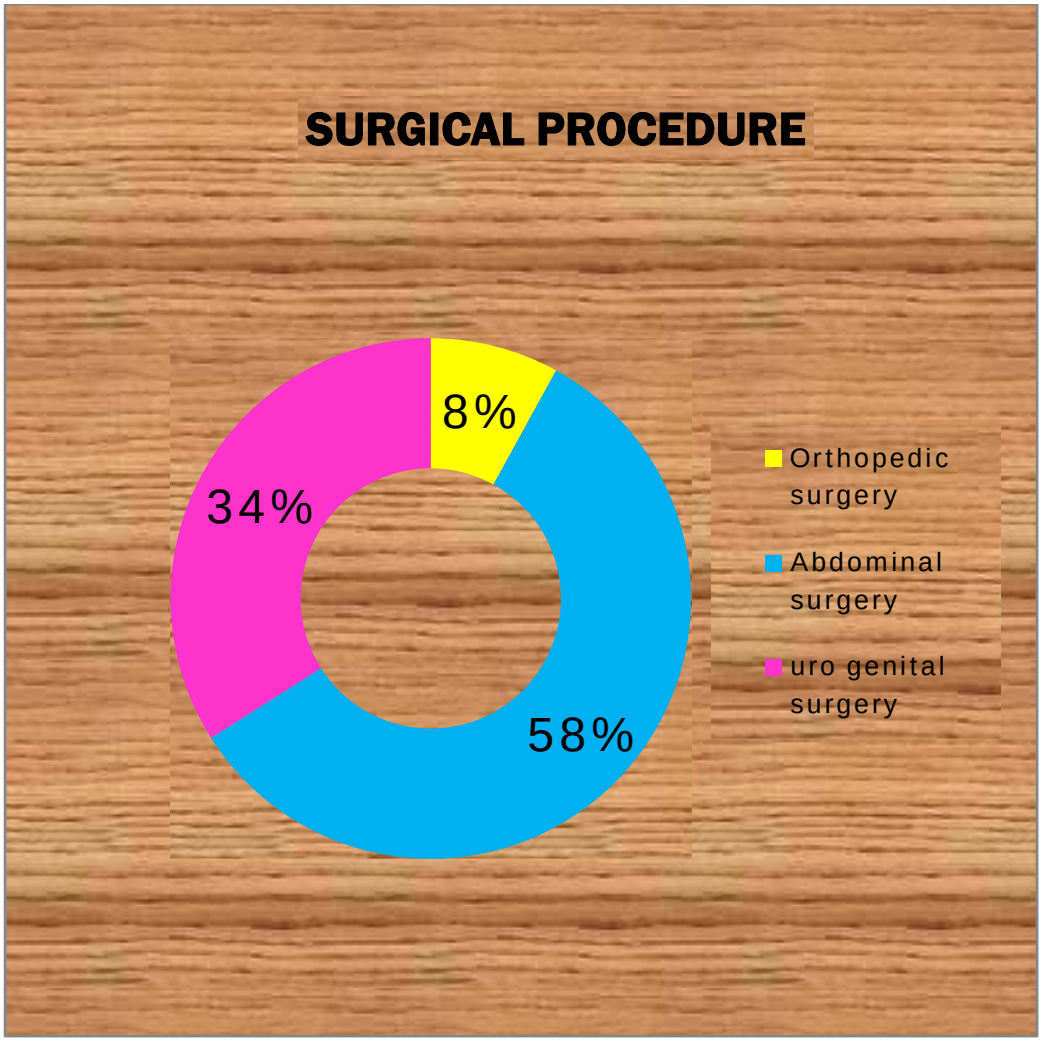
Above figure 4 Reveals that majority of the study subjects 32 (64%) were male subjects and 18 (36 %) were female subjects.

Figure 5: Distribution of Sample Percentage According to their Educational status.



The above figure 5 Reveals that among the 50 samples selected, 23 (46%) children had primary school education, 18 (36 %) had high school education and 9 (18 %) had no formal education.

Figure 6: Distribution of Sample Percentage According to the Surgery Done



Above figure - 6 Depicts that according to type of surgery 29 (58%) had undergone Abdominal surgery, 17 (34 %) had undergone Urogenital surgery and 4 (8 %) had undergone Orthopedic surgery.

SECTION- II

Table 3: Physiological parameters of children admitted in post operative ward before effleurage back rub

	HR Beats/min		RR Breaths/min		SBP mmHg		DBP Mm Hg		PAIN	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
DAY1 Morning Pre test	119.56	7.19	30.12	1.83	126.34	5.18	81.72	4.89	6.64	1.17
Evening Pre test	116.20	7.87	28.76	1.45	120.14	5.46	78.56	4.07	5.60	.81
DAY2 Morning Pre test	111.72	6.82	27.68	1.42	114.12	4.88	75.70	4.51	4.16	.55
Evening Pre test	107.64	6.20	26.04	1.83	109.50	4.44	71.12	3.38	3.72	.70

Above table 3 depicts that the highest pre test physiologic measures was observed in Day 1- Heart rate is 119.56 beats/min, Respiratory rate is 30.12breaths/min, Systolic blood pressure is 126.34 mm Hg, Diastolic blood pressure is 81.72 mm Hg and pain score is 6.64 .

Table 4: Physiological parameters of children admitted in post operative ward after effleurage back rub

	HR		RR		SBP		DBP		PAIN	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
DAY1 Morning Pre test	**112.76**	**6.99**	**25.72**	**2.56**	**117.50**	**6.37**	**73.94**	**4.80**	**4.32**	**1.30**
Evening Pre test	**109.72**	**7.66**	**24.32**	**2.44**	**113.58**	**5.90**	**70.54**	**3.59**	**3.48**	**.89**
DAY2 Morning Pre test	**104.36**	**6.35**	**22.52**	**1.71**	**106.54**	**5.22**	**67.80**	**4.22**	**2.12**	**.48**
Evening Pre test	**100.92**	**6.21**	**21.20**	**2.02**	**102.04**	**4.44**	**63.12**	**3.77**	**1.76**	**.66**

Above Table 4 Reveals that significant reduction in physiologic measures were noticed in the Day2 post test- Heart rate is 100.92beats/min , Respiratory rate is 21.20breaths/min , Systolic blood pressure is 102.04 mm Hg , Diastolic blood pressure is 63.12 mm Hg and post test Pain score is 1.76 mm Hg.

Table 5: Heart rate of children admitted in post operative ward before and after effleurage back rub

Observation schedule		Pre test		Post test		Student 's paired test
		Mean	SD	Mean	SD	
DAY1	Morning	119.56	7.19	112.76	6.99	t=14.53 P=0.001
	Evening	116.20	7.87	109.72	7.66	t=17.80 P=0.001
DAY2	Morning	111.72	6.82	104.36	6.35	t=20.03 P=0.001
	Evening	107.64	6.20	100.92	6.21	t=21.20 P=0.001

The above **table – 5** shows the effect of effleurage back massage on Heart rate each day. In day 1 highest mean pre-test heart rate was 119.56 beats/min and mean post test heart rate was 109.72 beats/min and 't' test 17.80. In day 2 highest mean pre test heart rate was 111.72 beats/min and post test mean heart rate 100.92 beats / min ,'t' test 21.20. The pre test heart rate was significantly reduced after introducing effleurage back rub. The mean reduction of Heart rate was statistically significant (P<0.001).

Table 6: Respiratory rate of children admitted in post operative ward before and after effleurage back rub

Number of Observations		Pre test		Post test		Student 's paired test
		Mean	SD	Mean	SD	
DAY1	Morning	30.12	1.83	25.72	2.56	t=16.05 P=0.001
	Evening	28.76	1.45	24.32	2.44	t=17.69 P=0.001
DAY2	Morning	27.68	1.42	22.52	1.71	t=22.51 P=0.001
	Evening	26.04	1.83	21.20	2.02	t=19.91 P=0.001

The above **table – 6** shows the effect of effleurage back massage on Respiratory rate each day. In day 1 highest mean pre-test Respiratory rate was 30.12 breaths/min and mean post test Respiratory rate was 24.32 breaths/min and't' test 16.05. In day 2 highest mean pre test Respiratory rate was 27.68 breaths/min and post test respiratory rate was 21.20breaths/min,'t' test 19.91. The pre test Respiratory rate was significantly reduced after introducing effleurage back rub in all 2 days. The mean reduction of respiratory rate was statistically significant (P<0.001).

Table 7: Systolic Blood pressure of children admitted in post operative wards before and after effleurage back rub

No of Observation		Pre test		Post test		Student 's paired test
		Mean	SD	Mean	SD	
DAY1	Morning	126.34	5.18	117.50	6.37	t=14.86 P=0.001
	Evening	120.14	5.46	113.58	5.90	t=11.37 P=0.001
DAY2	Morning	114.12	4.88	106.54	5.22	t=16.05 P=0.001
	Evening	109.50	4.44	102.04	4.44	t=14.30 P=0.001

Table no 7 Shows the effect of effleurage back massage on Systolic Blood pressure each day. In day 1 highest mean pre-test Systolic blood pressure was 126.34 mm Hg and mean post test Systolic blood pressure was 113.58 mm Hg and't' test 14.86. In day 2 highest mean pre test Systolic blood pressure was 114.12 mm Hg and post test Systolic blood pressure was 102.04, 't' test 16.05. The pre test Systolic blood pressure was significantly reduced after introducing effleurage back rub for 2 days. The mean reduction of Systolic Blood pressure was statistically significant (P<0.001).

Table 8: Diastolic Blood pressure of children admitted in post operative wards before and after effleurage back rub

No of Observations		Pre test		Post test		Student 's paired test
		Mean	SD	Mean	SD	
DAY1	Morning	81.72	4.89	73.94	4.80	t=18.30 P=0.001
	Evening	78.56	4.07	70.54	3.59	t=20.07 P=0.001
DAY2	Morning	75.70	4.51	67.80	4.22	t=24.75 P=0.001
	Evening	71.12	3.38	63.12	3.77	t=20.15 P=0.001

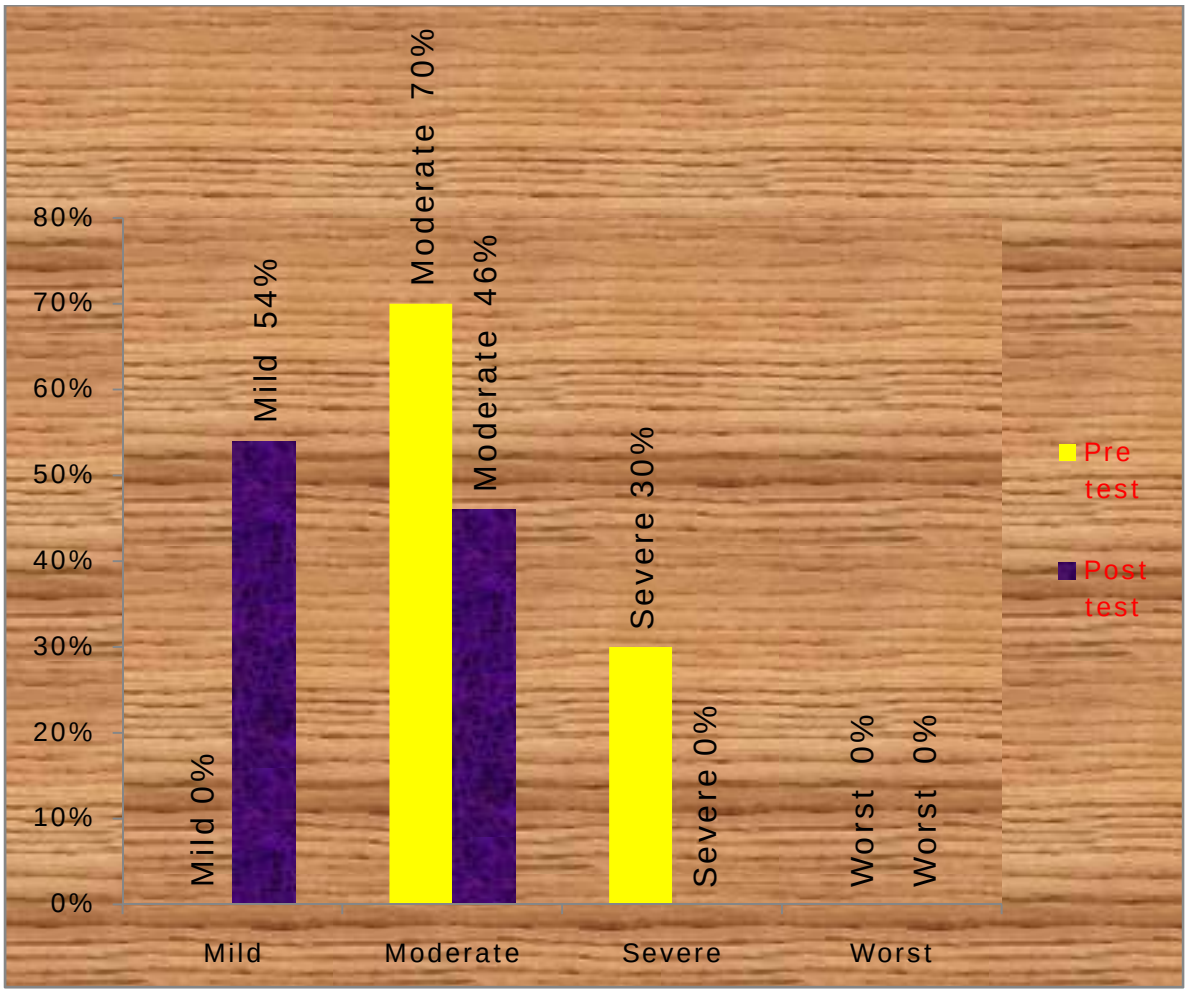
. **Table no 8** Shows the effect of effleurage back massage on Diastolic Blood pressure each day. In day 1 highest mean pre-test Diastolic blood pressure was 81.72 mm Hg and mean post test Diastolic blood pressure was 70.54 mm Hg and't' test 18.30. In day 2 highest mean pre test Diastolic blood pressure was 75.70 mm Hg and post test Diastolic blood pressure was 63.12 mm Hg , 't' test 20.15. The pre test Diastolic blood pressure was significantly reduced after introducing effleurage back rub for 2 days. The mean reduction of Diastolic Blood pressure was statistically significant (P<0.001).

Table 9: Pain score of children admitted in post operative ward before and after effleurage back rub

No of observations		Pre test		Post test		Student 's paired test
		Mean	SD	Mean	SD	
DAY1	Morning	6.64	1.17	4.32	1.30	t=21.14 P=0.001
	Evening	5.60	.81	3.48	.89	t=31.23 P=0.001
DAY2	Morning	4.16	.55	2.12	.48	t=51.05 P=0.001
	Evening	3.72	.70	1.76	.66	t=49.11 P=0.001

Table no 9 Shows the effect of effleurage back massage on Pain score each day. In day 1 highest mean pre test Pain score was 6.64 and mean post test pain score was 4.32 and't' test 31.23. In day 2 highest mean pre test Pain score was 4.16 and post test Pain score was 1.76,'t' test 49.11. The pre test pain score was significantly reduced after introducing effleurage back rub for 2 days. The first day mean pre test pain score was 6.64 and the same was reduced to 1.76 in day 2. The mean reduction of Pain score was statistically significant (P<0.001).

Fig –7 Comparison between pre and post test levels of pain



Above fig 7 Shows the pre test and post test level of Pain score. During Pre test majority of the study samples 35 (70%) verbalized moderate pain and 15 (30%) of the child verbalized severe pain. During post test majority of the study samples 27(54%) verbalized mild pain and 23 (46%) of the study samples verbalized moderate pain

SECTION-III

Table 10: Effectiveness of Effleurage back rub on physiological measures among children admitted in selected post operative ward

No of observation	Heart Rate Beats/min		Respiratory Rate Breaths/min		Systolic Blood Pressure mm Hg		Diastolic Blood Pressure Mm Hg		Pain Score	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
DAY 1 Pre test	119.56	7.19	30.12	1.83	126.34	5.18	81.72	4.89	6.64	1.17
DAY2 Post test	100.92	6.21	21.20	2.02	102.04	4.44	63.12	3.77	1.76	.66
Student 's paired t-test	t=20.73 P=0.001		t=21.01 P=0.001		t=28.88 P=0.001		t=24.32 P=0.001		t=28.21 P=0.001	

Above table 10 Depicts comparisons of physiologic measures before and after effleurage back rub using mean and standard deviation. Heart rate, Respiratory rate, systolic blood pressure, diastolic blood pressure and pain score was statistically significant at P 0.001. Reduction of Heart rate from baseline is 15.59%, Respiratory Rate is 29.61%, Systolic blood pressure < is 19.2%, Diastolic blood pressure is 18.6% and pain score is 73.40 %.The finding of the study depicted that there is significant difference between pre test and post test values of all physiologic measures.

Figure 8 Comparison of Physiologic Measures before and after Effleurage Back rub

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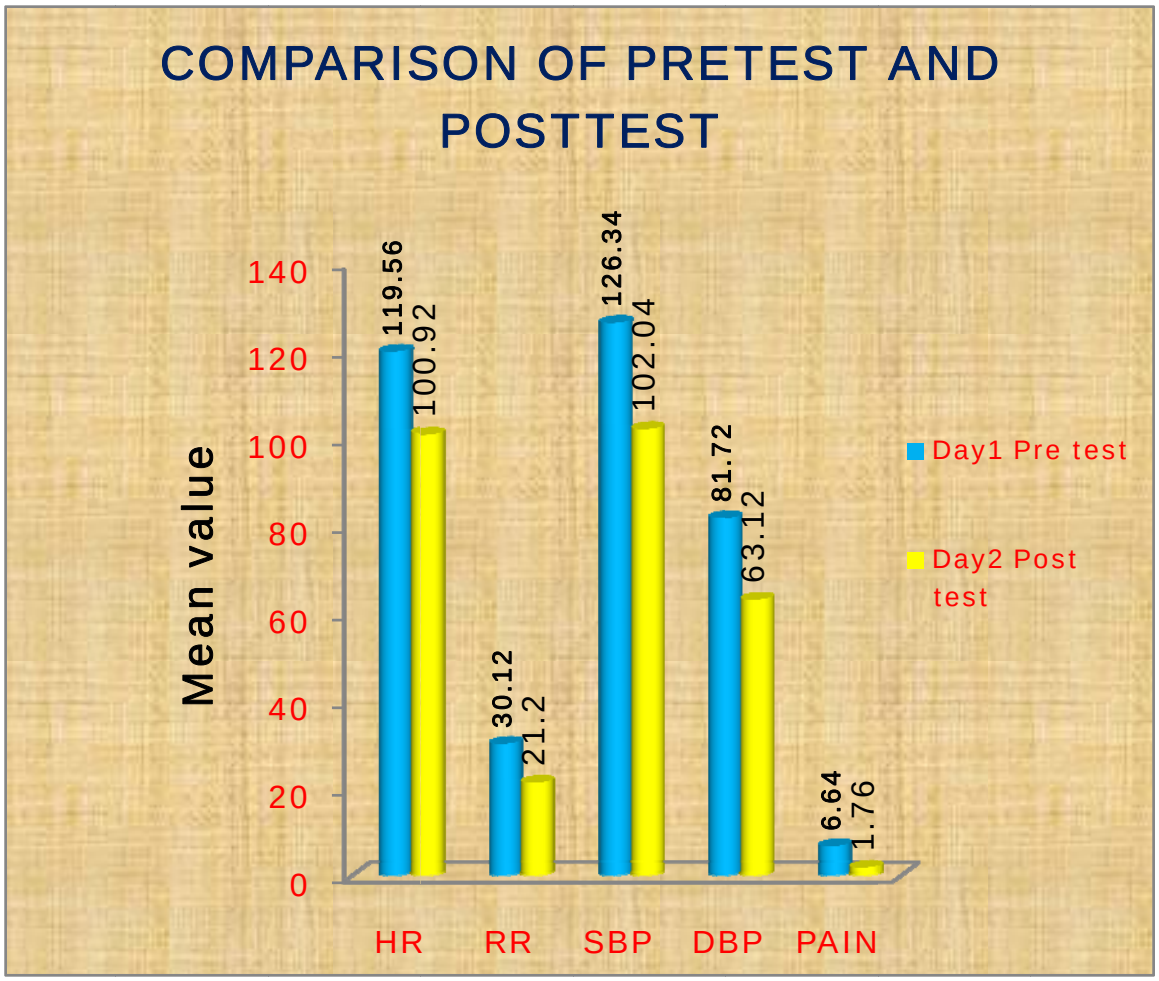


Above Fig 8 Shows the comparisons of physiologic measures before and after effleurage back rub. A statistically significant difference exists between the pre test and post test results

SECTION – IV

Table 11: ASSOCIATION BETWEEN HEART RATE REDUCTION AND SELECTED DEMOGRAPHIC VARIABLES

Demographic Variables		Heart rate reduction Median value=18				Total	Pearson chi square test
		Below median		Above median			
		n	%	n	%		
Age of child	8-10 years	17	63.0%	8	34.7%	25	$\chi 2=4.01$ P=0.05*
	11-12 years	10	37.0%	15	65.3%	25	
Sex	Male	19	70.4%	13	56.5%	32	$\chi 2=1.03$ P=0.31
	Female	8	29.6%	10	43.5%	18	
Education status	Primary school	11	40.7%	12	52.2%	23	$\chi 2=0.72$ P=0.69
	High school	11	40.7%	7	30.4%	18	
	No school education	5	18.5%	4	17.4%	9	
Type of surgery	Orthopedic surgery	0	0.0%	4	17.4%	4	$\chi 2=5.10$ P=0.08
	Abdominal surgery	17	63.0%	12	52.2%	29	
	Uro genital surgery	10	37.0%	7	30.4%	17	
Number of post operative day	2nd Post operative day	23	69.7%	10	30.3%	33	$\chi 2=6.80$ P=0.01*
	3rd Post operative day	4	23.5%	10	76.5%	17	
Administration of Analgesics	Intravenous	0	0.0%	0	0.0%	0	$\chi 2=0.77$ P=0.37
	Intramuscular	3	37.0%	1	56.5%	4	
	Rectal suppository	24	63.0%	22	39.1%	26	
what aggravates pain	Movement	13	48.1%	17	73.9%	30	$\chi 2=6.54$ P=0.08
	Pressing/touching	5	18.5%	0	0.0%	5	
	Movement+posture	4	14.8%	4	17.4%	8	
	Movement+pressing	5	18.5%	2	8.7%	7	

Above Table 11: Shows the association between demographic variables and reduction of heart rate. Significant difference was noted among the children aged between 11-12 years of age and in the 3rd post operative day.

FIGURE 9 Association between Heart rate reduction and Demographic variables

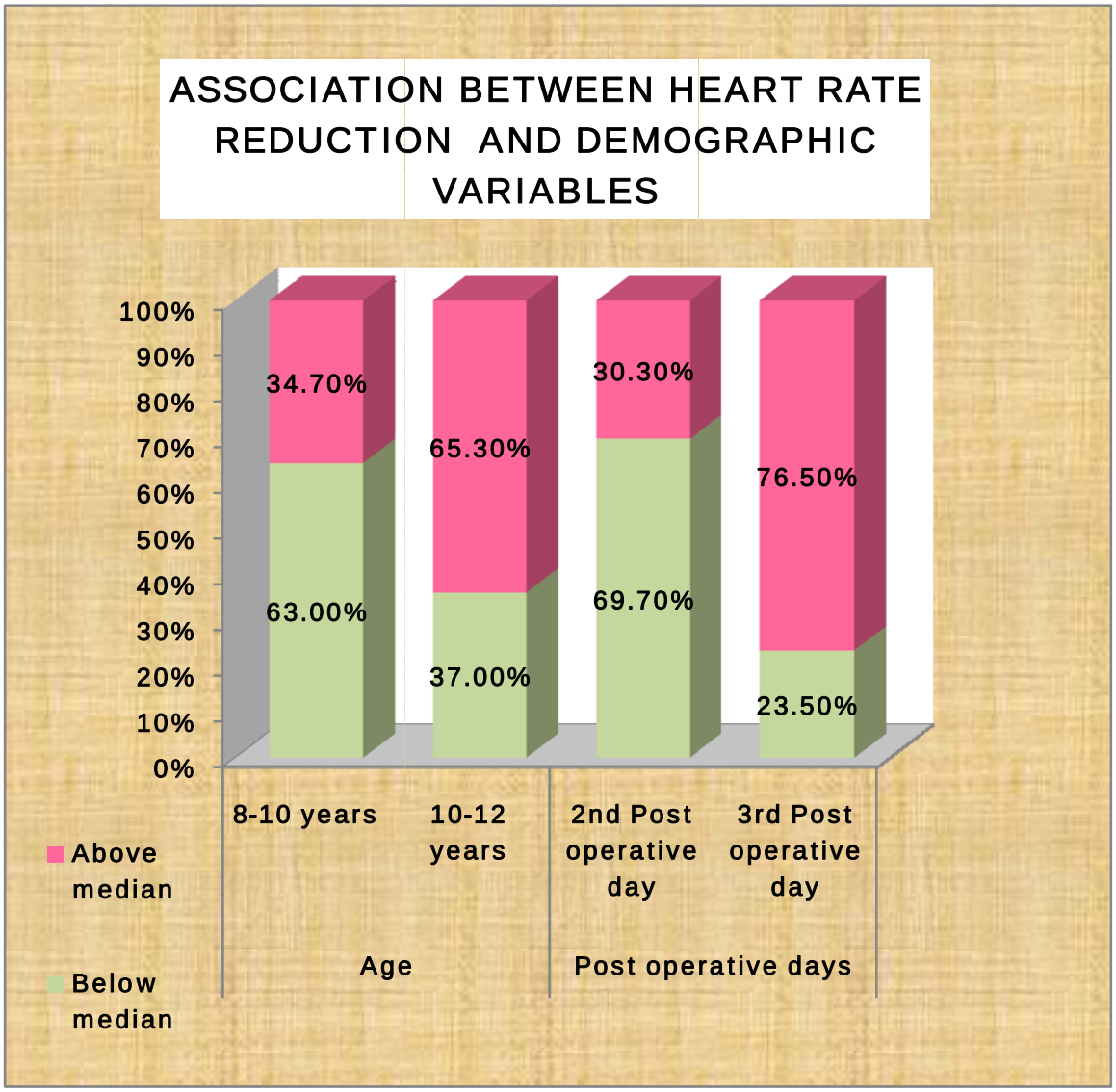


Figure 9 shows the association between demographic variables and reduction of heart rate. The heart rate was statistically significant at P=0.05, $\chi 2=4.01$ among the children in the age group of 11-12 years and P=0.01, $\chi 2=6.80$ significance noted among children in the 3rd post operative day.

Table 12: Association between respiratory rate reduction and selected demographic variables

Demographic variables		Respiratory rate reduction Median value=10				Total	Pearson chi square test
		Below median		Above median			
		n	%	n	%		
Age of child	8-10 years	21	53.8%	4	36.4%	25	$\chi 2$=4.01 P=0.05*
	11-12 years	18	46.2%	7	63.6%	25	
Sex	Male	26	66.7%	6	54.5%	32	$\chi 2$=0.54 P=0.46
	Female	13	33.3%	5	45.5%	18	
Education status	Primary school	18	46.2%	5	45.5%	23	$\chi 2$=0.97 P=0.61
	High school	13	33.3%	5	45.5%	18	
	No school education	8	20.5%	1	9.1%	9	
Type of surgery	Orthopaedic surgery	1	2.6%	3	27.3%	4	$\chi 2$=7.61 P=0.02*
	Abdominal surgery	23	59.0%	6	54.5%	29	
	Uro genital surgery	15	38.5%	2	18.2%	17	
Number of post operative day	2nd Post operative day	29	74.4%	4	36.4%	33	$\chi 2$=5.51 P=0.01*
	3rd Post operative day	10	25.6%	7	63.6%	17	
Administration of Analgesics	Intravenous	0	0.0%	0	0.0%	0	$\chi 2$=1.98 P=0.15
	Intramuscular	2	50.0%	2	50.0%	4	
	Rectal suppository	37	51.3%	9	54.5%	46	
what aggravates pain	Movement	22	56.4%	8	72.7%	30	$\chi 2$=4.88 P=0.18
	Pressing/touching	5	12.8%	0	0.0%	5	
	Movement+posture	5	12.8%	3	27.3%	8	
	Movement+pressing	7	17.9%	0	0.0%	7	

Table 12: Shows the association between demographic variables and reduction of Respiratory rate. Significant difference was noted in the children between 11-12 years of age, children who undergone Uro genital surgery and children in the 3rd post operative day.

Figure 10 Association between Respiratory rate reduction and Demographic variables

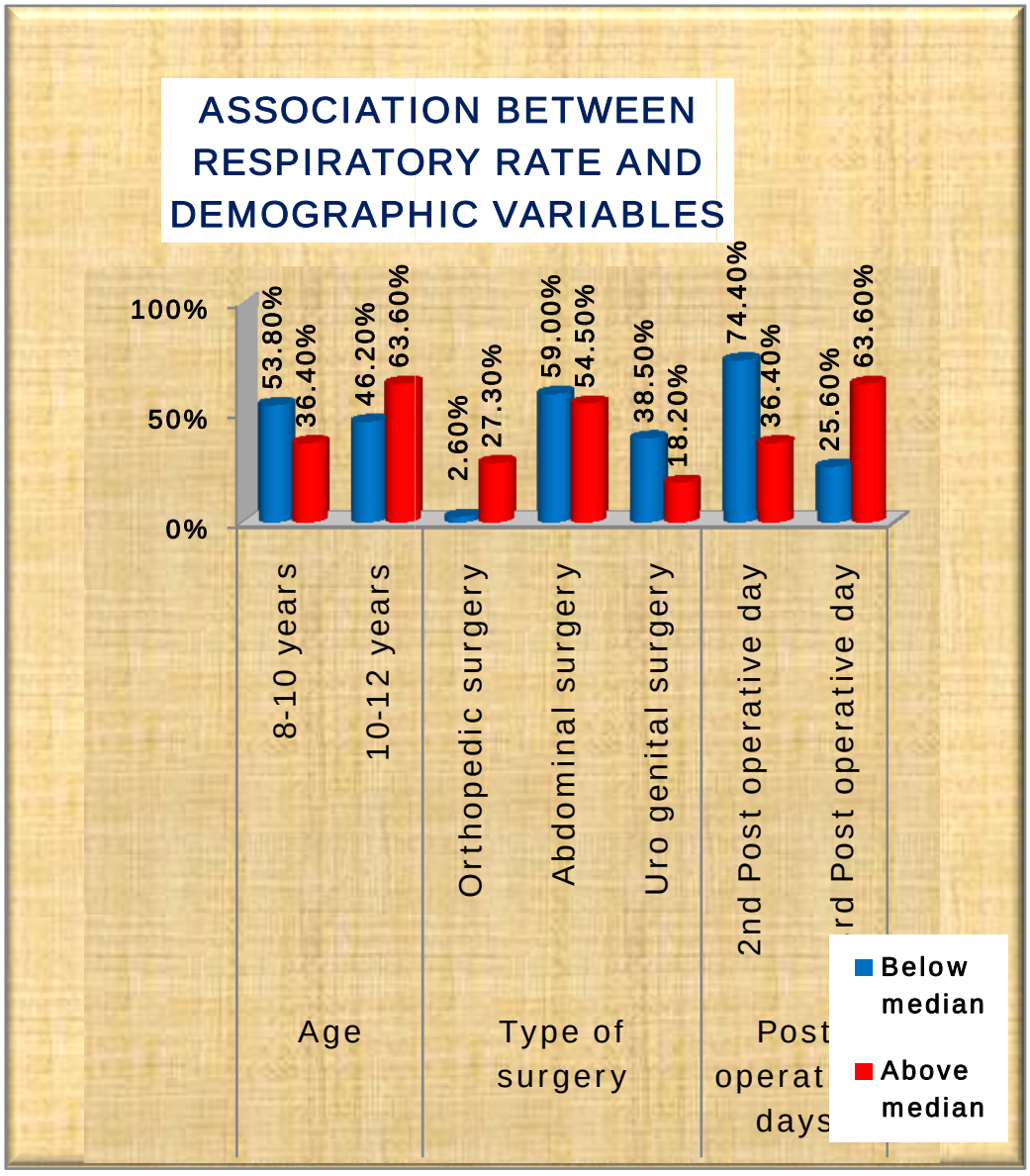


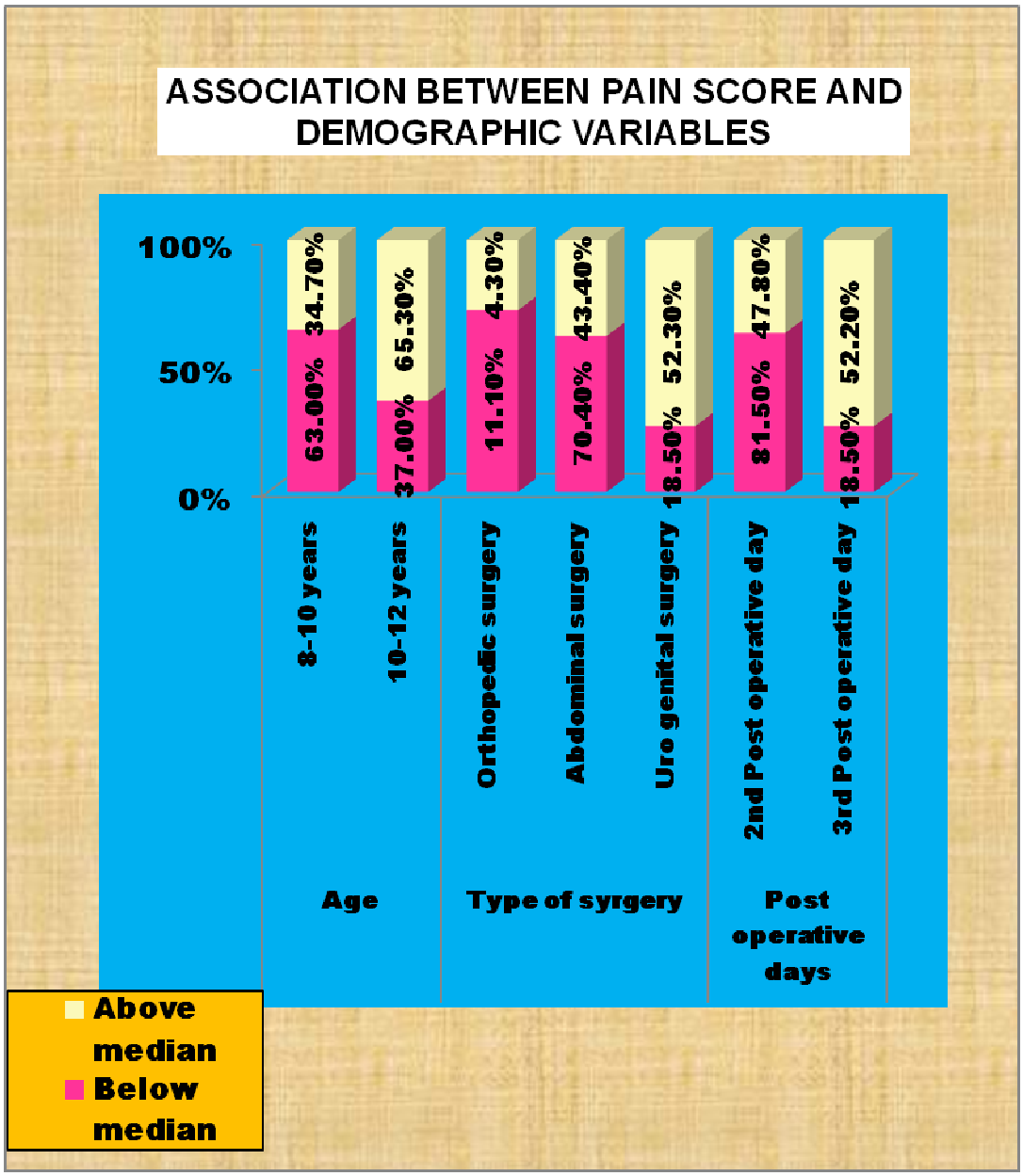
Figure 10 Shows the association between demographic variables and reduction of Respiratory rate. The respiratory rate was statistically significant at P=0.05 with $\chi 2=4.01$ in the age group of 11-12 years and P=0.02 with $\chi 2=7.61$ significance noted among children in the 3rd post operative day and P=0.01 with $\chi 2=5.51$ significance noted among Children who undergone abdominal surgery.

Table 13: ASSOCIATION BETWEEN PAIN SCORE REDUCTION AND THEIR DEMOGRAPHIC VARIABLES

DEMOGRAPHIC VARIABLES		PAIN REDUCTION Median value=3				TOTAL	PEARSON CHI SQUARE TEST
		BELOW MEDIAN		ABOVE MEDIAN			
		n	%	n	%		
Age of child	8-10 years	17	63.0%	8	34.7%	25	χ^2=4.01 P=0.05*
	11-12 years	10	37.0%	15	65.3%	25	
Sex	Male	19	70.4%	13	56.5%	32	χ^2=1.03 P=0.31
	Female	8	29.6%	10	43.5%	18	
Education status	Primary school	13	48.1%	10	43.5%	23	χ^2=0.18 P=0.91
	High school	9	33.3%	9	39.1%	18	
	No school education	5	18.5%	4	17.4%	9	
Type of surgery	Orthopedic surgery	3	11.1%	1	4.3%	4	χ^2=6.39 P=0.04*
	Abdominal surgery	19	70.4%	10	43.4%	29	
	Uro genital surgery	5	18.5%	12	52.3%	17	
Number of post operative day	2nd Post operative day	22	81.5%	11	47.8%	33	χ^2=6.26 P=0.01*
	3rd Post operative day	5	18.5%	12	52.2%	17	
Administration of Analgesics	Intravenous	0	0.0%	0	0.0%	0	χ^2=1.93 P=0.38
	Intramuscular	3	75.0%	1	25.0%	4	
	Rectal suppository	14	38.8%	22	61.2%	36	
what aggravates pain	Movement	13	48.1%	17	73.9%	30	χ^2=6.23 P=0.10
	Pressing/touching	2	7.4%	3	13.0%	5	
	Movement+posture	7	25.9%	1	4.3%	8	
	Movement+pressing	5	18.5%	2	8.7%	7	

Table no 13 Shows the association between demographic variables and pain reduction.. Significant difference was noted in the children between 11-12 years of age, children who undergone Uro genital surgery and children in the 3rd post operative day.

Figure – 11 Association between pain score and Demographic variables



Above Figure 11 Shows the association between demographic variables and pain reduction. The pain score was statistically significant at P=0.05, $\chi 2=4.01$ in the age group of 11-12 years and P=0.01, $\chi 2=6.39$ significance noted among children in the 3rd post operative day and P=0.04 $\chi 2=6.26$ significance noted among children who undergone Uro genital surgery.

Table 14: Association between systolic blood pressure reduction and their demographic variables

Demographic Variables		SBP reduction Median value=15				Total	Pearson chi square test
		Below median		Above median			
		n	%	n	%		
Age of child	8-10 years	14	53.8%	11	45.8%	25	χ^2=0.32 P=0.57 DF=1
	11-12 years	12	46.2%	13	54.2%	25	
Sex	Male	16	61.5%	16	66.7%	32	χ^2=0.14 P=0.70 DF=1
	Female	10	38.5%	8	33.3%	18	
Education status	Primary school	12	46.2%	11	45.8%	23	χ^2=0.29 P=0.89 DF=2
	High school	10	38.5%	8	33.3%	18	
	No school education	4	15.4%	5	20.8%	9	
Type of surgery	Orthopedic surgery	2	7.6%	2	8.3%	4	χ^2=3.67 P=0.16 DF=2
	Abdominal surgery	12	46.2%	17	70.8%	29	
	Uro genital surgery	12	46.2%	5	20.8%	17	
Number of post operative day	2nd Post operative day	18	69.2%	15	62.5%	33	χ^2=0.25 P=0.62 DF=1
	3rd Post operative day	8	30.8%	9	37.5%	17	
Administration of Analgesics	Intravenous	0	3.8%	0	0.0%	0	χ^2=1.26 P=0.25 DF=1
	Intramuscular	1	25.0%	3	75.0%	4	
	Rectal suppository	25	54.3%	21	45.7%	56	
what aggravates pain	Movement	14	53.8%	16	66.7%	30	χ^2=0.96 P=0.62 DF=3
	Pressing/touching	3	11.5%	2	8.3%	5	
	Movement+posture	3	11.5%	5	20.8%	8	
	Movement+pressing	6	23.1%	1	4.2%	7	

Table 14: Shows the association between demographic variables and Systolic Blood pressure reduction. None of the variables are significant.

Table 15: Association between diastolic blood pressure reduction and their demographic variables

Demographic variables		DBP reduction Median value=14				Total	Pearson chi square test
		Below median		Above median			
		n	%	n	%		
Age of child	8-10 years	20	58.8%	5	31.3%	25	χ^2=3.31 P=0.06 DF=1
	11-12 years	14	41.2%	11	68.8%	25	
Sex	Male	22	64.7%	10	62.5%	32	χ^2=0.02 P=0.88 DF=1
	Female	12	35.3%	6	37.5%	18	
Education status	Primary school	17	50.0%	6	37.5%	23	χ^2=2.81 P=0.25 DF=2
	High school	13	38.2%	5	31.3%	18	
	No school education	4	11.8%	5	31.3%	9	
Type of surgery	Orthopedic surgery	2	5.9%	2	12.5%	4	χ^2=1.23 P=0.53 DF=2
	Abdominal surgery	19	55.9%	10	62.5%	29	
	Uro genital surgery	13	38.2%	4	25.0%	17	
Number of post operative day	2nd Post operative day	24	70.6%	9	56.3%	33	χ^2=0.99 P=0.31 DF=1
	3rd Post operative day	10	29.4%	7	43.8%	17	
Administration of Analgesics	Intravenous	0	0.0%	0	0.0%	0	χ^2=0.64 P=0.42 DF=1
	Intramuscular	2	50.0%	2	50.0%	4	
	Rectal suppository	32	69.5%	14	31.5%	46	
what aggravates pain	Movement	21	61.8%	9	56.3%	30	χ^2=0.35 P=0.95 DF=3
	Pressing/touching	3	8.8%	2	12.5%	5	
	Movement+posture	5	14.7%	3	18.8%	8	
	Movement+pressing	5	14.7%	2	12.5%	7	

Table no 15 Shows the association between demographic variables and their reduction of Diastolic blood pressure. None of the variables are significant.

CHAPTER V

DISCUSSION

This chapter deals with the findings of the study based on the interpretation from the statistical analysis. The findings are discussed in relation to the objectives of the study. The findings are supported by the review of literature.

The purpose of the study was to assess the Effectiveness of Effleurage back rub on physiologic measures among children admitted in selected post operative wards.

Description of the demographic variables

Percentage distribution according to the age (Table 2) showed that equal proportions of the children 25 (50%) were in the age group of 8-10 years and 25 (50%) belongs to the age group of 11-12 years. Percentage distribution according to the sex showed that 32 (64 %) were males and 18 (36 %) were females. Highest percentage 23 (46 %) of selected samples had primary education, where as 18 (36 %) had high school education and 9 (18 %) of selected samples had no school education. Data depicts that 29 (58 %) had undergone Abdominal surgery, 17 (34%) had undergone urogenital surgery and 4 (8 %) had undergone orthopedic surgery. Highest proportion of children 33 (66%) were found to be in the second post operative day and 17 (34%) in third post operative day. Majority of the study subjects 46 (92 %) received analgesic rectally and 4 (8%) received analgesics intramuscularly. With regard to factors aggravating pain majority of the children 30 (60%) verbalized that movement aggravates pain.

The first objective was to assess the physiological measures among children admitted in Postoperative ward before giving Effleurage back rub

Data were analyzed using descriptive statistics Mean and standard deviation of Heart rate, Respiratory rate, Systolic blood pressure, Diastolic blood pressure and Pain score. The data findings reveal that the mean value of pre test heart rate was 119.56beats/min, mean value of pre test respiratory rate was 30.12breaths/min, pre test systolic blood pressure mean value was 126.34 mm Hg and diastolic blood pressure pre test mean value was 81.72 mm Hg and pretest

mean Pain score was 6.64. This is because pain is such an unpleasant sensation in children which have influenced other physiological measures also.

Profound physiologic changes often accompany the experience of pain. Physiologic parameters such as heart rate, respiratory rate, blood pressure, palmar sweating, cortisone levels, transcuatneous oxygen, vagal tone and endorphin concentrations reflect a generalized and complex response to stress. They are not localized responses to pain, but they provide useful information about the general distress levels of children who are experiencing pain. Physiologic parameters provide indirect estimates of pain and presence and strength of pain can only be inferred from the changes in these parameters. **Sweet and Mc Grath (1998)**

The Second objective was to assess the physiological measures among children admitted in selected Post operative ward after giving Effleurage back rub.

Data were analyzed using descriptive statistics Mean and standard deviation of Heart rate, Respiratory rate, Systolic blood pressure, Diastolic blood pressure and Pain score. The data findings reveal that the mean value of post test heart rate was 100.92beats/min, mean value of post test respiratory rate was 21.20breaths/min, post test systolic blood pressure mean value was 102.04 mm Hg and diastolic blood pressure post test mean value was 63.12mm Hg and post test mean Pain score was 1.76.

The findings were consistent with the study of Alan **David Kaye (2008) studied about** "The Effect of Deep-Tissue Massage Therapy on Blood Pressure and Heart Rate. All participants had significant pain prior to the study and experienced moderate or severe overall muscle spasm/strain. Prior to the massage, baseline diastolic, systolic and mean arterial blood pressure and heart rate. Each participant then received a deep-tissue massage between 45 and 60 minutes in duration. Data collected from the completion of the study showed an average systolic pressure reduction of 10.4 millimeters of mercury, a diastolic pressure reduction of 5.3 millimeters of mercury and a mean arterial pressure reduction of 7.0 millimeters of mercury. Results of the heart-rate data showed an average heart-rate reduction of 10.8 beats per minute.

Moyer et al (2004) conducted a study to test the effectiveness of Massage therapy. Findings reveal that the Single applications of Massage therapy reduced state anxiety, blood pressure, and heart rate but not negative mood, immediate assessment of pain, and cortisol level.

The third objective was to determine the effectiveness of effleurage back rub on physiological measures among children admitted in selected Post operative ward

Comparison shows that there is a statistically significant difference between pretest and posttest physiological parameters.

In day 1 highest mean pre-test heart rate was 119.56 beats/min and mean post test heart rate was 109.72beats/min and't' test 17.80. In day 2 highest mean pre test heart rate was 111.72beats/min and post test mean heart rate 100.92 beats/min ,'t' test 21.20. The pre test heart rate was significantly reduced after introducing effleurage back rub for 2 days. The first day mean Heart rate was 119.56beats/min and the same was reduced as 100.92beats/min in day 2. The mean reduction of heart rate was statistically very high significant ($P<0.001$).

In day 1 highest mean pre-test Respiratory rate was 30.12 breaths/min and mean post test Respiratory rate was 24.32 breaths/min and't' test 16.05. In day 2 highest mean pre test Respiratory rate was 27.68 breaths/min and post test respiratory rate was 21.20breaths/min,'t' test 19.91. The pre test Respiratory was significantly reduced after introducing effleurage back rub in all 2 days. The mean reduction of respiratory rate was statistically significant ($P<0.001$).

In day 1 highest mean pre-test Systolic blood pressure was 126.34 mm Hg and mean post test Systolic blood pressure was 113.58 mm Hg and't' test 14.86. In day 2 highest mean pre test Systolic blood pressure was 114.12 mm Hg and post test Systolic blood pressure was 102.04mm Hg, 't' test 16.05. The first day mean pre test systolic blood pressure was 113.58 mm Hg and the same was reduced to 102.04 in day 2. The mean reduction of Systolic Blood pressure was statistically very high significant ($P<0.001$).

In day 1 highest mean pre-test Diastolic blood pressure was 81.72 mm Hg and mean post test Diastolic blood pressure was 70.54 mm Hg and't' test 18.30. In day 2 highest mean pre test

Diastolic blood pressure was 75.70 mm Hg and post test Diastolic blood pressure was 63.12 mm Hg , 't' test 20.15.. The first day mean pre test systolic blood pressure was 81.72 mm Hg and the same was reduced to 63.12 mm Hg in day 2. The mean reduction of Diastolic Blood pressure was statistically very high significant (P<0.001).

In day 1 highest mean pre test Pain score was 6.64 and mean post test pain score was 4.32 and't' test 31.23. In day 2 highest mean pre test Pain score was 4.16 and post test Pain score was 1.76,'t' test 49.11. The pre test pain score was significantly reduced after introducing effleurage back rub for 2 days. The first day mean pre test pain score was 6.64 and the same was reduced to 1.76 in day 2. The mean reduction of Pain score was statistically very high significant (P<0.001).

Heart rate, Respiratory rate, systolic blood pressure, diastolic blood pressure and pain score was statistically significant at P 0.001. Reduction of Heart rate from baseline was 15.59%, Respiratory Rate was 29.61%, Systolic blood pressure was 19.2%, Diastolic blood pressure was 18.6% and pain score was 73.40 %.The finding of the study depicted that there is significant difference between pre test and post test values of all physiologic measures.

The findings were consistent with the study of **Mary Walton (2009)** who studied about the Immediate effects of Effleurage Back Massage on Physiological and Psychological Relaxation which was published in Nursing Journal of India (October 2009). Study findings reveal that there was significant change in blood pressure, HR and RR following effleurage back massage at 0.001 levels. There was significant change in pain level and anxiety level following effleurage back massage at 0.001

The findings were consistent **with the study of Labyak SE, Metzger BL(1997)** studied the effects of effleurage backrub on the Physiological Components of Relaxation. Results showed that effleurage backrub is associated with a reduction in Heart rate and Respiratory rate and that the consistently positive effects include a reduction in Heart rate and Respiratory rate across all subjects. Overall, the findings suggest that effleurage backrub of at least three minutes in duration are a non pharmacological form of Nursing therapy that promotes biological and subjective relaxation.

Therefore the above data reveals that there is significant reduction in physiologic measures after effleurage back rub, hence hypothesis H1 was accepted.

The fourth objective was to associate the selected demographic variables with physiologic measures.

When associating the Heart rate with selected demographic variables, a significant difference was noted with age and post operative day. The heart rate was statistically significant at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.01, $\chi 2$=6.80 significance noted among children in the 3rd post operative day.

When associating the respiratory rate with selected demographic variables, a significant difference was noted with age, post operative day and type of surgery. The respiratory rate was statistically significant at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.0, $\chi 2$=7.61 significance noted among children in the 3rd post operative day and P=0.02, $\chi 2$=5.51 significance noted among Children who undergone abdominal surgery.

When associating the pain score with selected demographic variables, a significant difference was noted with age, post operative day and type of surgery. The pain score was statistically significant at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.01, $\chi 2$=6.39 significance noted among children in the 3rd post operative day and P=0.04 $\chi 2$=6.26 significance noted among children who undergone Uro genital surgery. There was no significant association between Blood pressure and demographic variables. None of the variables are significant.

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter deals with the summary of the study and the conclusions drawn. It clarifies the limitations of the study. The implications and recommendations are given for different areas of Nursing such as practice, education, research and administration in the Health care delivery system.

6.1 SUMMARY OF THE STUDY

Perception of pain in pediatrics is complex, and entails physiological, psychological, behavioral, and developmental factors. However, in spite of its frequency, pain in infants, children, and adolescent is often underestimated and under treated. It has also been shown that infants and children, who experience pain in early life, show long-term changes in terms of pain perception and related behaviors. Health care professionals in this setting have a responsibility to reduce pain and anxiety as much as possible while maintaining patient safety. Non-pharmacological methods have been shown to be effective in relieving pain; however, many barriers, including lack of knowledge, limit Nurses' use of these methods. Pain education is a promising strategy for changing Nursing practice, but only a few authors have examined the effectiveness of educational interventions for nurses to help relieve children's postoperative pain. Profound physiological changes often accompany the experience of pain. Autonomic measures such as heart rate, skin conductance and temperature have been correlated with pain stimulation.

Hence, this study was undertaken to determine the effectiveness of Effleurage back rub on physiologic measures among children admitted in post operative wards.

The following objectives were set for the study:

- To assess the physiological measures among children admitted in Post operative ward before giving Effleurage back rub.
- To assess the physiological measures among children admitted in Post operative ward after giving Effleurage back rub.
- To determine the effectiveness of Effleurage back rub on physiological measures among children admitted in Post operative ward.
- To associate the findings with the selected demographic variables.(Age, Sex, Type of surgery, No. of post operative day, factor aggravating pain)

The study was based on the assumption that:

Effleurage back rub improves sense of well being and reduce the intensity of pain perceived and thereby reduce the physiologic parameters.

The following hypothesis was formulated:

H1 - There will be a significant relationship between effleurage back rub and physiological measures of children admitted in post operative ward.

H2 - There will be a significant association between post test physiologic measures among children admitted in post operative ward with their selected demographic variables.

The variables studied were

Independent variable ⟶ **Effleurage Back rub**

Dependent variable ⟶ **Physiologic Measures**

Extensive literature review and studies from primary and secondary focus regarding the effects of effleurage back rub on Physiologic measures provided evidence based guidance for the study. This has helped to design the methodology, develop the tool for data collection and the protocol for administering massage. The conceptual framework developed for the study was based on the **Wiedenbach's theory of helping art of clinical Nursing theory (1964).**

The tool used for data collection was validated by the experts in the department of Pediatric Surgery and Nursing. Reliability of the tool was assessed by using inter rater reliability correlation coefficient. The instrument was found to be reliable. Pilot study was conducted on six samples to find out the appropriateness and feasibility of conducting the study and it was found feasible.

The data collection was done for 6 weeks in the Selected Post operative wards, at Institute of Child Health and Hospital for children, Egmore, Chennai-8. Formal permission was obtained from the Director of the Institute and Head of the Department of Pediatric Surgery at Institute of Child health and Hospital for children, Egmore, Chennai-8.

The researcher adopted the Quasi-experimental one group pre test-post test design to assess the effect of effleurage back rub on physiologic measures. Convenience sampling technique was used to select 50 samples based on the inclusion criteria.

Parents were explained about the purpose of the study and were assured of confidentiality of the data collected. On the first day of sample selection, the demographic data and pre assessment of physiologic measures were obtained. Adequate privacy was provided during the procedure. Effleurage back rub was given for 10minutes morning and evening for 2 consecutive days. Post assessment of physiologic measures after 10 minutes was obtained.

Descriptive (percentage distribution, mean, standard deviation) and inferential statistics (t- test, Pearson chi square test) were used to analyze the data and to test hypothesis. The data were then interpreted and discussed based on the objectives of the study, hypotheses and relevant studies from literature reviewed.

The significant findings of the study

Description of the demographic variables

Percentage distribution according to the age (Table 2) showed that equal proportions of the children 25 (50%) were in the age group of 8-10 years and 25 (50%) belongs to the age group of 11-12 years. Percentage distribution according to the sex showed that 32 (64 %) were males

and 18 (36 %) were females. Highest percentage 23 (46 %) of selected samples had primary education, where as 18 (36 %) had a high school education and 9 (18 %) of selected samples had no school education. Data depicts that 29 (58 %) had undergone Abdominal surgery, 17 (34%) had undergone urogenital surgery and 4 (8 %) had undergone orthopedic surgery. Highest proportion of children 33 (66%) were found to be in the second post operative day and 17 (34%) in third post operative day. Majority of the study subjects 46 (92 %) received analgesic rectally ad 4 (8%) received analgesics intramuscularly. With regard to factors aggravating pain majority of the children 30 (60%) verbalized that movement aggravates pain.

The pain level gradually decreased day by day after effleurage back rub. The median pain on the first day before massage was 7 and the same was reduced after massage on the second day to 2. The reduction of pain was statistically v significant (P<0.001). The mean Heart rate before effleurage back rub was 119.56 beats/min and the same was reduced to 100.9beats/min after massage. The mean reduction of Heart rate was statistically significant (P<0.001). The mean Respiratory rate before massage was 30.12 breaths/min and the same was reduced to 21.02breaths/min after massage. The mean reduction of Respiratory rate was statistically significant (P<0.001). The mean Systolic blood pressure before Effleurage back rub was 126.34 mm Hg and the same was reduced to 102.04 mm Hg. The mean reduction of systolic blood pressure was statistically significant (P<0.001) The mean Diastolic blood pressure before Effleurage back rub was 81.72 mm Hg and the same was reduced to 63.12 mm Hg .The mean reduction of Diastolic blood pressure was significant (P<0.001). These findings showed that the Effleurage back rub was effective in reducing physiological responses among post operative children in selected post operative wards.

Heart rate, Respiratory rate, systolic blood pressure, diastolic blood pressure and pain score was statistically significant at P 0.001. Reduction of Heart rate from baseline is 15.59%, Respiratory Rate is 29.61%, Systolic blood pressure < is 19.2%, Diastolic blood pressure is 18.6% and pain score is 73.40 %.The finding of the study depicted that there is significant difference between pre test and post test values of all physiologic measures.

When associating the Heart rate with selected demographic variables, a significant difference was noted with age and post operative day. The heart rate was statistically significant

at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.01, $\chi 2$=6.80 significance noted among children in the 3rd post operative day.

When associating the respiratory rate with selected demographic variables, a significant difference was noted with age, post operative day and type of surgery. The respiratory rate was statistically significant at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.0, $\chi 2$=7.61 significance noted among children in the 3rd post operative day and P=0.02, $\chi 2$=5.51 significance noted among Children who undergone abdominal surgery.

When associating the pain score with selected demographic variables, a significant difference was noted with age, post operative day and type of surgery. The pain score was statistically significant at P=0.05, $\chi 2$=4.01 in the age group of 11-12 years and P=0.01, $\chi 2$=6.39 significance noted among children in the 3rd post operative day and P=0.04 $\chi 2$=6.26 significance noted among children who undergone Uro genital surgery.

There was no significant association between Blood pressure and demographic variables. None of the variables are significant.

6.2 CONCLUSION

This study attempted to find out the Effectiveness of Effleurage back rub on physiologic measures among children admitted in selected post operative wards.

The following conclusions were drawn from the study:

- Effleurage back rub was found to be effective in reducing pain and other physiologic measures in the post operative children.
- Pre assessment physiologic measures was significantly lower than the post test physiologic measures
- There was association between selected demographic variables and physiologic measures in children undergone surgery.

6.3 IMPLICATIONS

Implications drawn from the study are of vital concern to the field of Nursing including Nursing service, Nursing Education, Nursing Research and Nursing Administration.

6.3.1 Implications for Nursing practice

1. Nurse as a primary caregiver has a supreme responsibility in applying holistic approach while giving care to the patient. Effleurage back rub is to be included as a supplementary Nursing care which helps to reduce pain and other physiologic measures.

2. The study findings will help the Nursing personnel to include Effleurage as a Nursing intervention in the management of post operative pain in children.

3. A protocol steps on implementation of effleurage back rub can be developed and used in all post operative care settings.

6.3.2 Implications for Nursing Education

Nursing is an evolving profession where there is a need for evidence based quality care with adequate knowledge. Hence the Nurse Educators are responsible to incorporate the complementary alternate therapy in to the Nursing curriculum, thereby promoting interest for student Nurse.

1. The Nurse educators should include the relaxation technique and Effleurage as a relief measures.

2. Nurse Educators can provide In service education to the health personnel's regarding alternative systems of therapies it can meet the needs of the health care system.

3. Nurse educators can conduct Seminars, Workshop, Conferences, Symposium, Demonstration and Micro teaching programme regarding effleurage back massage in pain relieving.

4. It provides an opportunity for Nursing students to participate in massage therapy and also other pain management strategies.

6.3.3 Implications for Nursing research

1. Helps the Nursing researchers to focus and develop an insight on comprehensive alternative therapy.

2. Management and administration should give encouragement, motivation and financial support to do research on the effect of complementary therapy on post operative children.

3. Further more effective study can be made by future research by the Nursing personnel.

6.3.4 Implications for Nursing Administration

1. Nursing administrators can organize in-service education and can conduct conference regarding the benefits and techniques of back massage.

2. Nurse administrators should prepare a procedure manual and protocols regarding Effleurage back rub in children.

3. Nurse administrators must be assertive enough to discuss with hospital management in formulating policies regarding effleurage back rub for post operative children's. They can utilize the study for better quality care

6.4 Limitations

1**.** This study was done on a small sample size of 50; hence generalization is possible only for the selected subjects from selected hospital.

2. The researcher found little difficulty in getting co-operation from the children**.**

6.5 RECOMMENDATIONS

1. A similar study can be conducted for a larger sample using random selection.

2. Similar study can be conducted among different age groups and in different settings.

3. A comparison study can be done to determine the effect of Effleurage back rub on physiologic measures.

4. Same study can be conducted to assess the anxiety level of post operative children.

5. A longitudinal study can be conducted to assess the effect of Effleurage back rub on physiologic measures.

6. Similar study can be conducted using true experimental design.

7. The study can be made to compare the effects of Effleurage massage therapy for Children with cancer pain patient.

8. A comparative study can be carried out to ascertain the effectiveness if different non pharmacological methods are used.

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58. http://www.medline.com
59. http://www.painclinic.com

APPENDIX- A

TOOL FOR DATA COLLECTION

Interview / Observational Semi-Structured Schedule

Sample No:

Date:

Time:

SECTION –A

DEMOGRAPHIC VARIABLE

1. Age of the child (in years)

a) 8-10 years
b) 11-12 years

2. Sex of the child

a) Male
b) Female

3. Educations status of the child

a) Primary school (class I-V)
b) Secondary school (class VI – X)
c) No School education

SPECIFIC VARIABLES

4. Specify the type of Surgery

a) Orthopedic surgery
b) Abdominal surgery
c) Uro genital surgery

5. Post operative day

a) 2nd Post operative day

b) 3rd Post operative day

6. Administration of Analgesics

a) Intravenous
b) Intramuscular
c) Rectal

7. What aggravates pain?

a) Movement
b) Pressing/touching the area
c) Posture
d) Any other specify

கைக்கருவி – I

பொது தகவல்

இலக்கு : ஆய்வுக்கு எடுத்துக் கொள்ளப்பட்ட நபர்களைப் பற்றிய விபரங்களை சேகரித்தல்

பகுதி (அ) : புள்ளி விபர வினாத் தொடர்

குறிப்பு : கீழே கேட்கப்பட்டுள்ள வினாக்களுக்கு சரியான தகவல்களை தெரிவிக்கவும்

பகுதி - அ
பொது தகவல்

1) குழந்தையின் வயது (ஆண்டுகளில்)

அ) 8-10 வயதிற்குள் ☐

ஆ) 11-12 வயதிற்குள் ☐

2) குழந்தையின் பாலினம்

அ) ஆண் ☐

ஆ) பெண் ☐

3) கல்வி நிலை

அ) ஆரம்பநிலை ☐

ஆ) உயர்நிலை ☐

இ) பள்ளிக்கு செல்லாதவர் ☐

தனிப்பட்ட விவரங்கள்

4) அறுவை சிகிச்சை வகை

அ) எலும்பு சம்பந்தமான அறுவை சிகிச்சை ☐

ஆ) வயிறு சம்பந்தமான அறுவை சிகிச்சை ☐

இ) சிறுநீர் மற்றும் பிறப்பு உறுப்பு சம்பந்தமான அறுவை சிகிச்சை ☐

5) அறுவை சிகிச்சை முடிந்து

அ) முதல் நாள் ☐

ஆ) இரண்டாம் நாள் ☐

6) வலிகுறைக்கும் மருந்து உடலில் செலுத்தும் முறை

அ) நரம்பின் மூலமாக ☐

ஆ) தசைகளின் மூலமாக ☐

இ) ஆசனவாய் மூலமாக ☐

7) கீழ்கண்ட செய்முறை எவையால் வலி அதிகமாக ஏற்படுகிறது

அ) அசைவுகள் ☐

ஆ) அழுத்துவது ☐

இ) நிலை ☐

ஈ) வலியுள்ள பகுதியை தொடும்போது ☐

Section – B

Aim **:** To assess the Heart rate, Respiratory rate and Blood Pressure before and after Performance of Effleurage back rub from Day I to Day II**.**

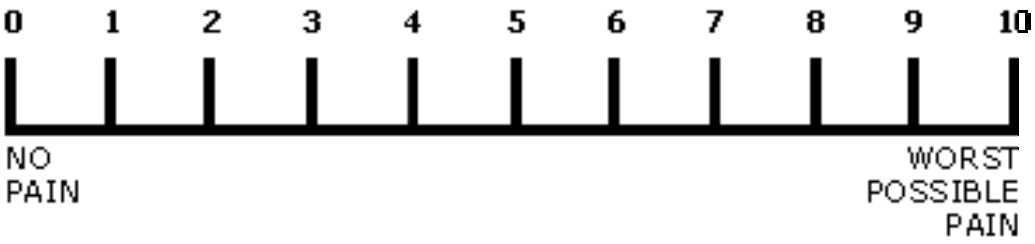
Section – B **:** Assessment of the Physiologic Measures
Instructions **:** The observation will be recorded by the Investigator using reliable instruments

Number of days	Test	Heart rate	Respiratory Rate	Systolic Blood pressure	Diastolic Blood pressure	Pain score
1	Morning Pre test Effleurage back rub Post test Evening Pre test Effleurage back rub Post test					
2	Morning Pre test Effleurage back rub Post test Evening Pre test Effleurage back rub Post test					

SECTION - C

VISUAL ANALOGUE SCALE

Visual Analog Numeric Pain Scale Consisted of 0 - 10 Scores. It consists of 10 cm base line at 1 cm interval ranging from 0-10. The visual analog numeric pain scale was explained to the samples subjects and asked to respond to the visual analog scale before and after effleurage back Massage.



0 - No pain

1- 3 - Mild Pain

4- 6 - Moderate Pain

7 – 9 - Severe Pain

10 - Worst pain possible

APPENDIX-B

EFFLEURAGE PROTOCOL

OBJECTIVE

To help the patient to reduce the level of pain perception.

DEFINITION

Soothing, long, gliding strokes made with the entire flat surface of the hands that may be deep or superficial. Effleurage involves a light gliding motion which is applied to the body part to be massaged using his or her hands or forearms. It is characterized by the application of medium but continuous pressure to the body.

EFFLEURAGE OR DEEP STROKING

This is the movement of the palmar aspect of hand over the external surface of the body without constant moderate pressure in the direction of venous and lymphatic drainage.

REQUIRED EQUIPMENT FOR EFFLEURAGE BACK RUB

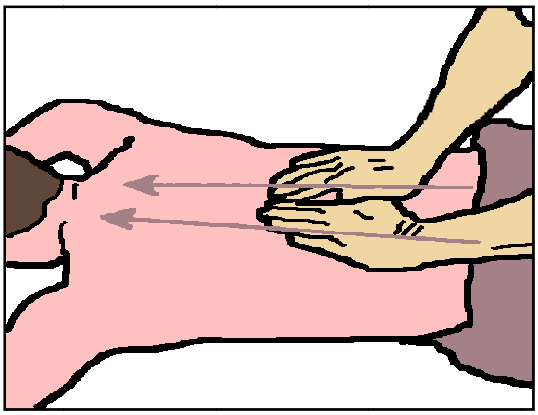
1. Warm, quiet and relaxed environment
2. Firm comfortable surface such as firm bed
3. Massage oil or powder.
4. Towels to lie on and also to cover the body
5. Cushions or pillows

Technique 1

Effleurage(Smooth rhythmic stroking):Using the Whole Hand

Apply a small amount of powder with the whole hand using smooth rhythmic strokes. It is important to use the whole surface of both hands. Use firm movements to stroke upwards, i.e.

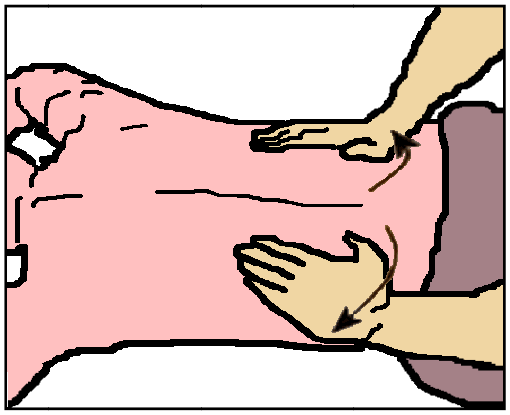
from the lower back right up to the neck, using gentle pressure circle around and slowly move to the lower back region. Follow this procedure for 5 minutes.



Technique 2

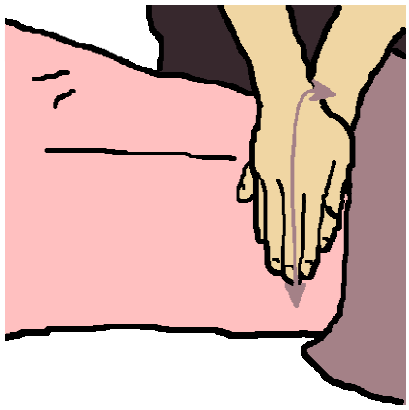
Effleurage: Using the Heal of the Hand

In this technique there is a smaller area of contact because of which the pressure is deeper. Start at the lower back using both the hands and working in circles. Using the same circular movement, move outward first and then upward. Return to the center gradually and then progress to the upper back. This procedure should be followed for 2-3 minutes.



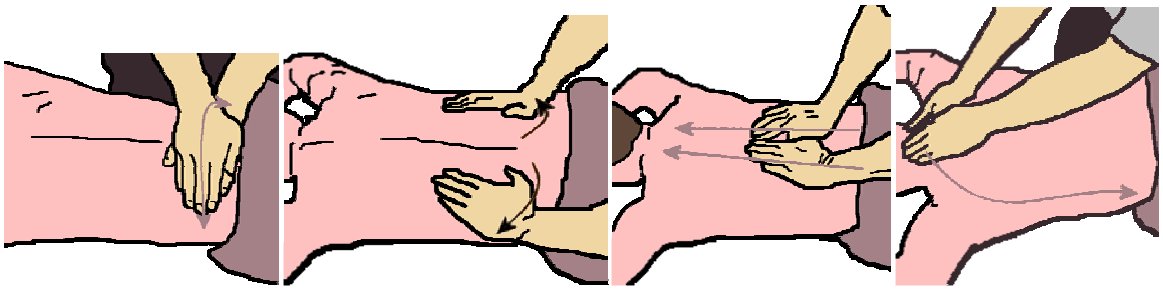
Technique 3
Effleurage: Using Reinforced Fingers

Like the previous technique, this one too concentrates on a smaller area of contact. Stand on the right hand side of the area that you are working on. Place one hand on top of another and push with the flats of your hand away from the centerline, and then glide back towards the spine. Begin this procedure at the lower back and work up to the upper back. Follow this procedure for 2-3 minutes.



Using Effleurage to finish the massage routine

Apply Effleurage with supported fingers, heel of the hand and the full hand. Using these techniques will increase the good that you have done with the trigger and stripping point release. After this is done, leave the patient quiet for a few minutes



PHYSIOLOGIC EFFECTS

1. The effects of effleurage are more pronounced on the circulation of the skin of the area to be managed.
2. Effleurage produces squeezing of the veins and lymphatic and forces the venous and lymphatic fluids towards the heart, as a result of which the chance of accumulation of waste is prevented/minimized.
3. Stagnation of blood and lymph is decreased.
4. Venous and lymphatic drainage improves.
5. It has a mild stimulating effect on the vaso motor nerves supplying the blood vessels and skin and leads to excitation of axon reflex.
6. It brings about the liberation of histamine due to the stimulation of mast cells and causes erythema.
7. Stimulation of touch and pressure receptors during effleurage brings about a sedative effect serves to soothe, decreases pain and lessens muscle tension.

ROLE OF NURSE

- Explain the procedure to the client
- Obtain informed consent to the client
- Keep ready the equipments before the procedure starts
- Apply minimal direct pressure on bony processes
- Avoid broken skin blisters or area of possible infection

STEPS INVOLVED IN EFFLEURAGE MASSAGE

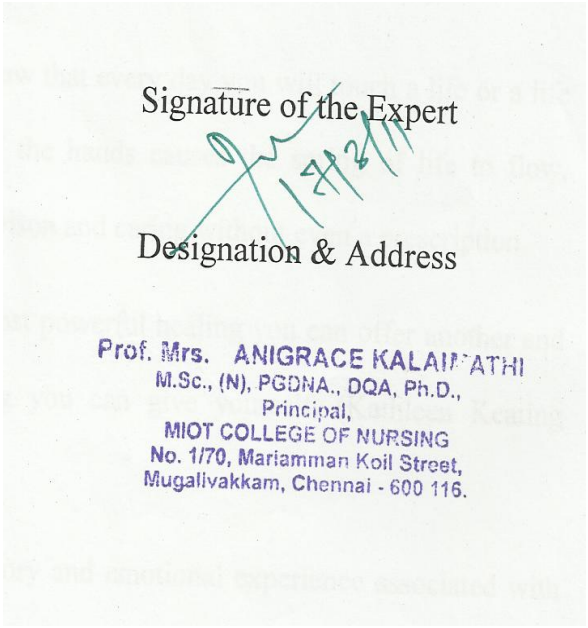
S. No	Steps of procedure	Rationale
1.	Wash Hands	Decreases transmission of micro organisms
2	Adjust bed to comfortable position and lower side rails if any.	Ensures proper body mechanisms and prevents strain on Nurse's Back muscles.
3	Place child in comfortable position- side lying position/prone position if comfortable	Enhances relaxation and exposes areas to be massaged.
4	Drape child and expose only the area to be massaged	Maintains privacy and warmth
5.	Apply powder to the child's back	Avoids friction between the investigators palms and patients posterior aspect.
6	Use firm movements to stroke upwards, i.e. from the lower back right up to the neck, using gentle pressure circle around and slowly move to the lower back region. Follow this procedure for 5 minutes.	Long stroking is most soothing of massage movement
7	Using the same circular movement, move outward first and then upward. Return to the center gradually and then progress to the upper back. This procedure should be followed for 2-3 minutes.	Enhances deeper pressure

8	Place one hand on top of another and push with the flats of your hand away from the centerline, and then glide back towards the spine. Begin this procedure at the lower back and work up to the upper back. Follow this procedure for 2-3 minutes.	Gentle firm pressure applied to all muscle group promotes relaxation continuous contact with skin's surface is soothing and stimulates circulation to tissue
9	End Effleurage with supported fingers, heel of the hand and the full hand.	Improves comfort and helps in relaxation
10	After completion child was helped to redress completely	Helps to improve the child's comfort

APPENDIX- C

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by Ms. K. Kalpana, M. Sc (N) I year, Child Health Nursing Specialty, College of Nursing, Madras Medical College, Chennai-03 for her topic "**A study to determine the effectiveness of Effleurage back rub on Physiologic measures among Children Aged 8-12 years admitted in selected Post Operative Wards at ICH & HC, Egmore, Chennai-08**" is validated by the undersigned and she can proceed with this tool to conduct the main study.

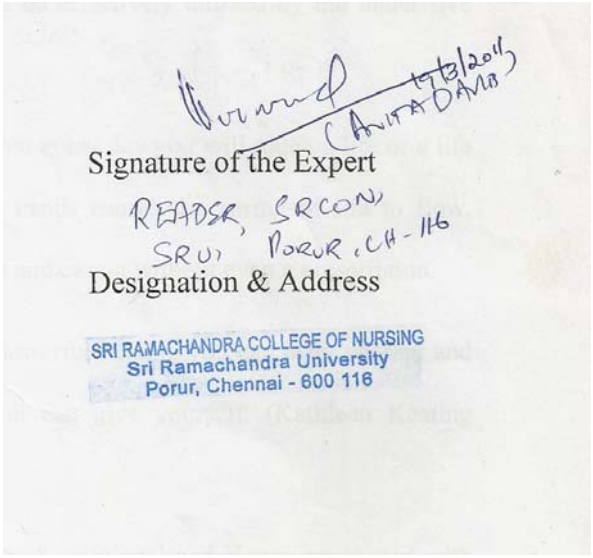


Place :Chennai

Date : 17.03.11

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by Ms. K. Kalpana, M. Sc (N) I year, Child Health Nursing Specialty, College of Nursing, Madras Medical College, Chennai-03 for her topic "**A study to determine the effectiveness of Effleurage back rub on Physiologic measures among Children Aged 8-12 years admitted in selected Post Operative Wards at ICH & HC, Egmore, Chennai-08**" is validated by the undersigned and she can proceed with this tool to conduct the main study.



Place :Chennai

Date : 19.03.11

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by Ms. K. Kalpana, M. Sc (N) I year, Child Health Nursing Specialty, College of Nursing, Madras Medical College, Chennai-03 for her topic "**A study to determine the effectiveness of Effleurage back rub on Physiologic measures among Children Aged 8-12 years admitted in selected Post Operative Wards at ICH & HC, Egmore, Chennai-08**" is validated by the undersigned and she can proceed with this tool to conduct the main study.

Place : Chennai

Signature of the Expert

Date : 19.03.11

APPENDIX-D

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI -3

Telephone No: 04425305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Ms. K. Kalpana
M.Sc Nursing II Year
College of Nursing
Madras Medical college, Chennai -3

Dear Ms. K. Kalpana

The Institutional Ethics Committee of Madras Medical College reviewed and discussed your application for approval of the proposal entitled "Effectiveness of Effleurage back rub on Physiologic measures among children admitted in selected Post operative ward at ICH and Hospital for children, Egmore, Chennai " No. 39072011.

The following members of Ethics Committee were present in the meeting held on 21.07.2011 conducted at Madras Medical College, Chennai -3.

1.	Prof. S.K. Rajan, MD	-- Chairperson
2.	Prof. V. Kanagasabai, MD Dean, Madras Medical College, Chennai-3,	-- Deputy Chairman
3.	Prof. A. Sundaram, MD Vice Principal , Madras Medical College, Chennai -3	-- Member Secretary
4.	Prof R. Sathiamathan , MD	-- Member
5.	Prof R. Nandhini, MD Director, Institute of Pharmacology, MMC, Ch-3	-- Member
6.	Prof. Geetha Subramanian MD. DM Prof & Head , Dept. of Cardiology, MMC, Ch-3	-- Member
7.	Prof. Pregna B. Dolia, MD Director , Institute of Biochemistry, MMC, Ch-3	-- Member
8.	Prof. C. Rajendiran, MD Director , Institute of Internal Medicine, MMC, Ch-3	-- Member
9.	Thiru. A. Ulaganathan Administrative Officer, MMC, Chennai -3	-- Layperson
10.	Thiru. S. Govindasamy . BA.BL	-- Lawyer
11.	Tmt. Arnold Soulina MA	-- Social Scientist

We approve the proposal to be conducted in its presented form

Sd /. Chairman & Other Members

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information / informed consent and asks to be provided a copy of the final report

Member Secretary, Ethics Committee

APPENDIX- E

PERMISSION LETTER TO CONDUCT MAIN STUDY

From

Ms. Kalpana. K,
II year M. Sc (N) Student,
College of Nursing,
Madras Medical College,
Chennai – 600 003.

To

THE DIRECTOR
Institute of Child Health and Hospital for Children
Chennai – 600 008.
Through

The Proper Channel

Respected Sir,

Sub: Permission to Conduct main Study - Req-Reg.,

I Ms. Kalpana. K., kindly request you to grant me permission to conduct main study on the topic **"A study to assess the effectiveness of Effleurage back rub on Physiological measures among children admitted in Selected Post operative wards at Institute of Child Health and Hospital, Egmore, Chennai**" from 29.08.2011 to 29.09.2011. I assure that I will not interfere with routine activities of the department.

Kindly oblige and consider my request.

PERMISSION LETTER TO CONDUCT MAIN STUDY

From

Kalpana. K
II year M.Sc. (N) Student
College of Nursing
Madras Medical College
Chennai – 600 003.

To

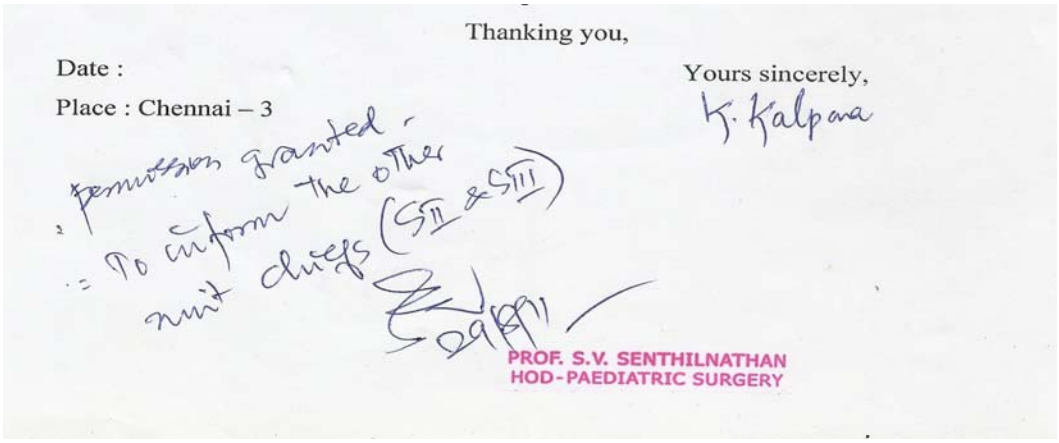
T**HE PROF AND HEAD OF THE DEPARTMENT OF PAEDIATRIC SURGERY**
Institute of Child Health and Hospital for Children
Chennai - 600 008.

Through
The Proper Channel
Respected Sir,

Sub : Permission to Conduct Main Study– req-reg.,

I Ms. Kalpana K., kindly request you to grant me permission to conduct a study on the topic **"A study to assess the effectiveness of Effleurage back rub on Physiological measures among children admitted in Selected Post operative wards at Institute of Child Health and Hospital, Egmore, Chennai "** from 29.08.11 to 29.09.2011. I assure that I will not interfere with routine activities of your department.

Kindly oblige and consider my request



APPENDIX- F

BONE AND JOINT
PHYSIOTHERAPY & FITNESS CLINIC
PAIN RELIEF & WEIGHT REDUCTION CENTRE
No.1, Somasundaram Nagar, APEX Complex, C. Pallavarm, Chennai - 600 043.
(Opp. to Hotel MARS) Cell : 9840266362, 9600113894

A. NAZEER DEEN, B.P.T., M.P.T. (Ortho) Physiotherapist
N. SHAMEEMA BANU, B.P.T., M.I.A.P., Physiotherapist
A. ALLAUDHIN, B.P.T., M.I.A.P., Physiotherapist

CERTIFICATE OF TRAINING UNDERGONE IN CLASSICAL MASSAGE THERAPY

This is to certify that Ms. K. Kalpana II year M. Sc (Nursing) students, College of Nursing, Madras Medical College, Chennai, underwent a training programme in Classical back massage for children for a period of two weeks from 08.08.11 to 21.08.11.She has gained knowledge and the skill to practice the same.

BONE AND JOINT PHYSIOTHERAPY & FITNESS CLINIC CHENNAI 600 043

Place :

Date : 23/08/11

Signature with seal

DR.A.NAZEER DEEN, M.P.T.(Ortho), M.I.A.P.,
Chief Physiotherapist
BONE AND JOINT
PHYSIOTHERAPY & FITNESS CLINIC
No.1, Somasundaram Nagar,
C.Pallavaram, Chennai-600 043.

APPENDIX- G

ஆராய்ச்சி தகவல் தாள்

நீங்களும் இந்த ஆராய்ச்சியில் பங்கேற்க நாங்கள் விரும்புகிறோம். அதனால் தங்களது குழந்தையின் நோயின் ஆய்வறிக்கையோ அல்லது சிகிச்சையோ பாதிப்புக்கு ஏற்படாது என்பதையும் தெரிவித்துக் கொள்கிறேன்.

முடிவுகளை அல்லது கருத்துக்களை வெளியிடும் போதோ அல்லது ஆராய்ச்சியின் போதோ தங்களது பெயரையோ அல்லது அடையாளங்களையோ வெளியிட மாட்டோம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

இந்த ஆராயச்சியில் பங்கேற்பது தங்களுடைய விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் இந்த ஆராய்ச்சியிலிருந்து பின்வாங்கலாம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

ஆராய்ச்சியாளர் கையொப்பம் பங்கேற்பாளர் கையொப்பம்

தேதி

APPENDIX- H

ஆராய்ச்சி ஒப்புதல் கடிதம்

உங்கள் குழந்தைக்கு அறுவை சிகிச்சை முடிந்த இரண்டாம் நாளில் இருந்து இரண்டு நாட்களுக்கு முதுகில் 10 நிமிடத்திற்கு காலை மாலை இரண்டு வேலையும் மசாஜ் செய்யப்படும். குழந்தையின் உடல் இயக்க அளவீடுகள் (இதயத்துடிப்பு, சுவாசம், இரத்த அழுத்தம் மற்றும் வலியின் நிலை) இவற்றில் ஏற்படும் மாறுதல்கள் கண்காணிக்கப்படும்.

பெயர் தேதி

வயது ஆராய்ச்சி சேர்க்கை எண்

இந்த ஆராய்ச்சியின் விவரங்களும் அதன் நோக்கங்களும் எனக்கு தெளிவாக விளக்கப்பட்டது. எனக்கு விளக்கப்பட்ட விவரங்களை நான் புரிந்து கொண்டு நான் எனது சம்மதத்தை தெரிவிக்கிறேன்.

இந்த ஆராய்ச்சியில் பிறரின் நிபந்தனையின்றி என் சொந்த விருப்பத்தின் பேரில் தான் பங்கு பெறுகிறேன். மற்றும் நான் இந்த ஆராய்ச்சியிலிருந்து எந்நேரமும் பின் வாங்கலாம் என்பதையும் அதனால் எந்த பாதிப்பும் ஏற்ப்டாது என்பதையும் புரிந்து கொண்டேன்.

நான் இந்த ஆராய்ச்சியின் விவரங்களை கொண்டு தகவல் தாளை பெற்று கொண்டேன். நான் என்னுடய சுய நினைவுடன் மற்றும் முழு சுதந்திரத்துடனும் இந்த ஆராய்ச்சியில் என்னையும் என் குழந்தையையும் சேர்த்துக்கொள்ள சம்மதிக்கிறேன்.

கையொப்பம்

xxii